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President's Report to Members[1]

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OUR ASSOCIATION report for the fortieth year, 1956-1957, cannot be given without first paying due respect to our heritage, to our predecessors, and to the present membership who have spun the web of our mingled activities. We mutually share ceaseless aspirations for our professional association, and from their fulfillment we receive refreshment. It is regrettable that there is not space to relate all of the innumerable activities of our members, the constituents of the Association. How I wish that I could pass on and quote contents of correspondence, reports, and bulletins which have come to my desk!

Recruitment of Dietitians

The Association is focusing its sharpest attention today on the recruitment of dietitians to meet current needs and on the extension of professional services. It might be said that this problem is tridimensional: first, to keep you, our members, engaged in our profession, the reasons being obvious to you; second, to recruit in the highly competitive field of health careers and in other areas where less training is required for occupations with vying salaries; third, to give our members in the field assistance in the realm of more effective educational tools, work simplification procedures, improved techniques in areas of specialization, and the training of auxiliary workers with the ultimate aim of stretching our services.

Recruitment for future dietitians is an individual responsibility. With the drastic changes in the employment pattern of women and the group shortage of women between twenty and thirty years of age, we are engaged in a very competitive talent hunt. Unhappily, we, as well as other health professions, have been caught in the decline of the number of women going into the professions. Let us strive to attract more young people to the profession, and encourage more qualified, non-working members to become reactivated as *shared* and *part-time* dietitians.

The sale of guidance materials from Headquarters office exceeds all previous records. The accent put on career guidance in cooperation with the American Hospital Association during National Hospital Week undoubtedly contributed to a greater distribution of such materials.

We are well aware of the effectiveness a film would have in telling our story and in carrying it to areas not reached at present. At the fortieth annual banquet of the Association, the management of the H. J. Heinz Company is making the very important announcement that it will undertake full financial sponsorship of the recruiting film. Individually and collectively, we are grateful for this unique contribution to the primary program of the Association. Energetic action of individuals and joint efforts of national, state, and local associations will be required for effective use and wide distribution of the film.

Continuing Education Program

Another facet of activity this year was the inauguration of the position of Continuing Education Services Director. In January, Bessie Brooks West assumed this position, which was established to develop additional services for the membership and specifically, to give assistance through group conferences, workshops, institutes, or such other means as the membership desires. You have been asked for the type of information you wish supplied and by what means you would like it presented.

The Continuing Education program is supplementary to many other fine programs which are being offered. Activities in this year's programming were centered on needs which arose from actual on-the-job situations. Pilot studies were made in several states with enthusiastic response from the participants. In addition to refreshing those who have been continuously employed, it is anticipated that perhaps some of our members who have not been active in the profession will have an opportunity to become better acquainted with new developments, improved procedures, and current educational practices.

Many of us concur with Nicholas Murray Butler's

[1]Presented in Miami at the businesss meeting of members of The American Dietetic Association on October 22, 1957.

comment, "An expert is one who knows more and more about less and less." National, state, and local dietetic association programs and activities should be sufficiently stimulating and geared to the professional challenges of our times. As is customary in many of our affiliated state associations, a great deal of the activity is conducted with allied groups. This practice is conducive to better understanding and improved working relationships with other professional workers.

Moving Ahead

It has always been an objective of the Association to move forward to meet the future, not shrinking from the challenges of our profession. A committee appointed to study the broadening of membership in The American Dietetic Association is considering the breadth of responsibilities of the dietetic profession and evaluating the preparation and experience required to meet them. A preliminary report has been made and further deliberations will follow.

Activity in varied areas has been conducted by the four Sections which continue to make intensive studies and have planned conferences during the Annual Meeting which are pertinent to current needs and future development.

The Committee to Study the Food Service Supervisor will not only report at this Annual Meeting, but will also have a conference for those who are interested. This Committee has been accumulating all the information available on courses at all levels presently being conducted for the food service supervisor and is now reviewing the course outlines, catalogues, and descriptions of courses which have been received in an effort to evaluate these courses. Such a study is basic to revising the Association's *Course Outline* and to determining the needs of such programs.

Our frontiers have been extended in two directions—northwest and southeast. The affiliation of the Alaska Dietetic Association and the Puerto Rico Dietetic Association has been announced in recent months. We extend to them a hearty welcome.

It is a privilege for The American Dietetic Association to confer honorary membership on Leonard A. Maynard, Ph.D., Sc.D., Professor Emeritus of Biochemistry and Nutrition, School of Nutrition, Cornell University, in recognition of his outstanding contributions to nutrition and dietetics.

The first presentation of Mead Johnson Awards was made this year. Six awards of five hundred dollars each have been made to dietetic interns who are currently enrolled in approved dietetic internships, as well as two one-thousand-dollar Mead Johnson Awards for Graduate Education in Dietetics.

The name of the Civil Defense Committee has been changed to Disaster Feeding and Civil Defense Planning Committee in order to describe more accurately the change in interests and current needs for disaster preparedness. The emphasis placed by the Joint Commission on the Accreditation of Hospitals on plans for a natural or military disaster has been changed and now stresses our members' participation in this endeavor.

Collaboration with Allied Groups

For many years the Association has been cognizant of the importance of collaboration with allied groups to attain common objectives. Representatives of our Association continue to meet with those of the American Hospital Association twice a year. This is not a policy committee. Recommendations are made to the Council on Professional Practice of the A.H.A. and to our Executive Board. There has been considerable exchange of views on what the administrator expects of the dietitian and in turn, what the dietitian can expect of the administrator. Our Association cosponsors the dietetic institutes of the American Hospital Association, and many of our members and Headquarters staff assist in program planning and participate in these meetings.

During the past year, we have engaged in additional activities with colleagues for the purpose of utilizing and pooling specialized knowledge to improve the well-being of mankind. A joint committee with the Council on Foods and Nutrition of the American Medical Association has as its project the study of bland diets. Its principle objective is to study the work which has been done, as well as what needs to be done, on the various components of foods and their possible effects on gastrointestinal function in health and disease.

The American Home Economics Association's Committee on Rehabilitation has become the Joint A.H.E.A.-A.D.A. Committee on Rehabilitation of Patients with Chronic Illness. Members in the vicinity of New York City initiated this project. With expansion in the area of chronic disease and increased longevity, a real challenge has been placed on professional groups to work together to make their contributions effective in the community.

A joint committee has also been established with the National League for Nursing with the ultimate aim of giving more assistance to our members engaged in nursing education. Some of the needs expressed by dietitians have been related to curriculum planning, including the time required for teaching, and effective methods geared to current concepts of nursing education. If more specific resources are exchanged and made available, perhaps we can improve our teaching and make better use of our time as well as recruit part-time and shared dietitians for these programs. A better understanding of the requirements in the education and dietary experience for the one-year nurse, commonly known as the practical nurse, is also being sought.

Combating food misinformation is not only of great concern to us, but to many allied organizations. Representatives of The American Dietetic Association, American Public Health Association, American Medical Asociation, American Home Economics Association, and American Dental Association met in August in Chicago to review the activities of each organization in this area. The members of this committee have suggested another meeting to include representatives of other organizations interested in the problem. The ultimate goal is to devise a cooperative and effective plan of education for both professional people and the lav public in this area.

Representatives of The American Dietetic Association, the American Diabetes Association, and the Public Health Service this year developed and published additional "Diabetic Teaching Materials," including: three dietary plans for higher caloric levels; a bland, low-fiber diabetic diet; a sodium-restricted diabetic diet; and a guide for the selection of dietary prescriptions.

The work of the joint committee with the Mental Hospital Division, American Psychiatric Association, is also continuing.

Your Association has participated in numerous national meetings and was represented on many national committees. We have had committee members on several committees of both the National Health Council and the National Project of Agricultural Communications.

Association Publications

The Association publications are a source of great pride to us as an organization. The JOURNAL, which is the common medium we all receive as well as proudly share with subscribers all over the world, continues to maintain a record of reporting original research in approximately 50 per cent of the total number of articles published. The September JOURNAL was the largest issue ever printed.

The publication of *Food Facts Talk Back,* presented by the Community Nutrition Section, and coordinated by Thelma Pollen, Public Relations Director, is the greatest productive effort the Association has yet made to combat food misinformation. It has already been widely reviewed and enthusiastically accepted. By the very virtue of our professional identity, we are all obligated to participate in combating food misinformation. With this very attractive source booklet as a tool, we shall make tangible progress. Let every member promote its distribution and sale!

The revision of *Allergy Recipes* by the Diet Therapy Section meets the requests for this material which has been in demand for some time.

The *A.D.A. Courier* is now available to the membership on an annual subscription basis.

The brochure, *A Dietetic Internship,* with its many photographs, has been redesigned, and *Dietitians in Demand* has been rewritten and broadened.

Investigation is under way concerning the publication of some of our pamphlets in braille.

The long awaited history of the Association, which we can all share with pride, is to become a reality! We are indeed pleased to announce that Mary Isabel Barber will be its editor. It is planned that the book will be a vital, readable, and inspirational story of our Association from its founding up to the present time. Anna Boller Beach deserves special recognition for collecting and assembling the historical data. The story is not yet finished. May I quote one of Archibald MacLeish's metaphors:

> The journey of our history has not ceased,
> Earth turns still toward the rising east.

Exhibits

The Association's exhibit program is an important media of education. It also serves to acquaint allied groups with our activities and services. With the able assistance of many members throughout the country, the Association has exhibited at the following national meetings during the year: American Dental Association, American School Food Service Association, American Public Health Association, American Personnel and Guidance Association, National League for Nursing, Catholic Hospital Association, American Medical Association, American Home Economics Association, Seventh Congress on Maternal Care, and American Hospital Association. Themes for exhibits were nutrition and dental health, recruitment, the shared dietitian, diet therapy, and weight control.

The Association has been invited to prepare an exhibit for the Smithsonian Institution's Hall of Health. The art work and description of the exhibit have been submitted to the reviewing committee. The content of the display will deal with hospital food service in 1799 as contrasted with that of the present day.

Do plan and allot time for visiting both the commercial and educational exhibits which are a very important part of our Annual Meeting.

The Headquarters Office

Several work simplification procedures have been implemented in the Headquarters office. Considerable equipment has been purchased, some of which was needed for replacement and some of it for streamlining the work. It is anticipated that some man-hours will be reduced.

We can all be proud of the members of our Headquarters staff. The Executive Board would like you to become better acquainted with them and their responsibilities. Since good communications are essential for an effective organization, the staff members have prepared a leaflet which contains pho-

tographs of the staff and brief descriptions of their areas of work. Through this publication we shall have a better understanding of how the Headquarters office functions.

The Future Challenges

How can our Association activities best serve you, our members? During the year, the Executive Board has continued to evaluate existing practices and initiated new activities in varied channels.

Now, I should like to pose questions for future consideration: Would our horizons be enlarged with regional meetings in alternate years? Would we provide greater professional stimulus to more members in more communities? Would we give increased assistance to members? Approximately 10 per cent of our membership attends an Annual Meeting. Is half of the 10 per cent comprised of the same persons each year? Last year, 59 per cent of the attendance at the Annual Meeting came from within a 300-mi. radius and 16 per cent from within a radius of 300 to 600 mi. or a total of 75 per cent from within a radius of 600 mi.

If an increasing number of members is holding two jobs, that of a dietitian as well as a homemaker, would we reach more people through regional meetings? The size of the meetings no doubt would permit different kinds of programming. Is this desirable? Will there be more opportunities for leadership? Would regional meetings be a method to advance dietetics as a profession? Needless to say, the financial aspects as well as the staff requirements for such a change would need to be carefully evaluated.

Forty years ago in Cleveland, The American Dietetic Association sprang into being. Its experience has been much like that of a pebble dropped in a pool of water. In the words of James W. Foley:

> But there's a hundred ripples circling on
> and on and on,
> Spreading, spreading from the center,
> flowing on out to sea
> And there is no way of telling where
> the end is going to be.

It has been a rare privilege to serve as your President. I extend my sincerest gratitude to you for having given me this memorable experience.

I speak for the Executive Board as I take this opportunity to express our deep appreciation for the invaluable contributions of the Headquarters staff to the accomplishments of the year. We have a sincere appreciation of the continuing participation and fine professional activities of the Coordinating Cabinet and of the many women and men who comprise *The American Dietetic Association.*

Protective Effect on Enzymes of Carbohydrates against X-Rays

Although Dale reported the protection of D-amino acid oxidase against X-irradition by a wide variety of substances, including several sugars, the general theory has developed that the primary effect of X-rays on enzyme proteins is achieved through action on sulfhydryl groups, and sulfhydryl compounds have been most widely used as protective agents. The protective effect of several other types of compounds is now reported.

Purified enzymes, e.g., lactic dehydrogenase, catalase, hexokinase, aldolase were irradiated in aqueous solution using a 250 kv. X-ray machine. Inactivation data for these in the absence of protective compounds are presented.

Following establishment of an X-ray dose which produced approximately 50 per cent inactivation of the enzyme under study, irradiation was repeated at this dose in the presence of several concentrations of protective substance.

The following conclusions have emerged:

(a) The protective effect of sugars may be observed at a concentration as low as or even lower than that required for the commonly used sulfhydryl reagents.

(b) Enzymes which are not dependent for this activity on sulfhydryl groups, e.g., aldolase and catalase, are protected by sugars.

(c) Generally, glucose, which is not considered to have a reactive aldehyde group, is as effective as glyceraldehyde, which does.

In discussing the results, particular emphasis is put on whether protective agents act by competing with the enzyme protein for reaction with free radicals or by rendering active groups on the protein inaccessible by some kind of shielding effect or complex formation.

Abstract of a paper by Trevor Robinson, A. W. Phillips, and Shirley Dilb, Biological and Food Research Laboratories and Department of Bacteriology and Botany, Syracuse University; presented before the Division of Biological Chemistry, American Chemical Society, September 8, 1957, in New York City.

A Wheat-, Rye-, and Oat-Free Diet[1]

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THE CLINICAL picture of non-tropical sprue (idiopathic steatorrhea, and so on), perhaps the largest single entity among those which comprise the malabsorption syndrome, consists of: chronic or recurrent diarrhea characterized by yellowish, foul, liquid to mushy, bulky stools; abdominal distention; weight loss (often marked); anorexia; weakness; and one or more of a constellation of symptoms and signs which result from malabsorption. Principal among these are: pallor, fatigability, and other evidences of anemia which is due principally to faulty iron absorption; in certain instances, it may be due to deficiency of an erythrocyte maturation factor, such as folic acid or vitamin B_{12}. Other signs include: muscular wasting and edema secondary to diminished blood proteins; paresthesias; various manifestations of tetany, bone pain, and fractures which result from the hypocalcemia consequent to poor absorption of calcium and vitamin D; and hemorrhagic phenomena and roughening of the skin resulting from similar difficulty with assimilation of two other fat-soluble vitamins, K and A, respectively. Occasionally, patients have glossitis and peripheral neuritis which probably are due to deficiencies of the B-complex.

The syndrome occurs principally in individuals in the third to fifth decade, and in our experience is much more common in women. The course of the disorder is unpredictable; in certain individuals, the symptoms are severe during certain seasons and climatic conditions; others have constant, low-grade activity of the disorder; and another group—the most common—will have discrete exacerbations and remissions.

The diagnosis is established by the demonstration of abnormal fat loss in the stools, defective glucose absorption, and characteristic abnormalities of the small intestine on examination with a barium meal. The clinician must remember, however, that certain other diseases may cause the identical picture, and he must take the necessary steps to exclude them before initiation of therapy. Some of these conditions are: pancreatic afflictions and chronic inflammatory diseases of the small intestine, such as regional enteritis, mesenteric tuberculosis, intestinal lymphoma, and "lipodystrophy" of the small bowel.

Therapeutic Approaches

There have been several different therapeutic approaches to non-tropical sprue. For many years, liver extract as well as various diets low in starch and fat have been employed with, at best, modest success. More recently the use of adrenocortical steroids—cortisone, hydrocortisone, prednisone, and prednisolone—have proved to be very effective, often leading to subsidence of diarrhea, return of appetite, gain in weight and strength, and disappearance of all symptoms and signs which resulted from the malabsorptive state (1). Patients may be treated for long periods with small maintenance doses of these substances, e.g., 12.5 to 25.0 mg. cortisone; 10 mg. hydrocortisone; and 10 to 15 mg. prednisone or prednisolone. In very severe forms of the illness, ACTH may be life saving (2).

Early in 1953, three Dutch investigators—Dicke, Weijers, and van de Kamer—reported (3) that the cereals, wheat, rye, and oats, were responsible for the diarrhea and steatorrhea of childhood celiac disease. In a later paper that year, they showed that the two major protein fractions of wheat—gluten

[1]Receieved for publication April 29, 1957.

[2]The authors wish to acknowledge their indebtedness to the Department of Nutrition of The New York Hospital, several of the staff of which helped in formulating the wheat-, rye-, and oat-free diet, and particularly to Margaret Wylie and Darlene Erlander who developed the recipes.

and gliadin—and presumably of rye and oats also, seemed to be the offending substances (4). Because of the clinical similarity between non-tropical sprue and celiac disease, there has been enormous interest in the use of a wheat-, rye-, and oat-free diet in the therapy of adult non-tropical sprue. Moreover, many patients suffering from sprue either have had celiac disease themselves or report its familial occurrence. In addition, although corticosteroid therapy is efficacious, it is somewhat hazardous on the long-term basis for it may cause peptic ulceration, reactivation of tuberculosis, demineralization of bone, thrombo-embolic phenomena, delayed wound healing, and severe mental aberrations.

Dietary Elimination of Wheat, Rye, and Oats

Shortly after the publication of this work, the gastro-intestinal subdepartment of the Department of Medicine of The New York Hospital—Cornell Medical Center initiated a program of wheat, rye, and oat elimination from the diet of patients with non-tropical sprue. The Department of Nutrition of the Center was able to evolve a diet which was practical. While it is not the primary purpose of this communication to stress clinical results, a brief summary of our experience with this diet is pertinent.

Wheat-, Rye-, and Oat-Free Diet

This diet is free from cereal proteins, except those found in rice and corn. It is adequate for normal nutrition. The diet for the adult contains approximately 90 gm. protein, 90 gm. fat, 200 gm. carbohydrate, and 2000 calories. If a higher caloric diet is desired, a high caloric wheat-, rye-, oat-free diet may be ordered. (All quantities listed are for adults. For children, milk should be increased and size of servings of other foods decreased according to the age of the child.)

Foods Allowed

Milk	2 glasses or more (more for children); flavored if desired
Eggs	1 or 2 a day
Meat, fish, and poultry	2 medium servings daily (not breaded, creamed, or served with thickened gravy; no bread dressings; otherwise, prepared as desired)
Cheese	as desired
Bread	made from rice, corn, soy bean, and gluten-free wheat flour only
Cereals	corn flakes; corn meal; hominy; rice; Rice Krispies; Puffed Rice; pre-cooked rice cereals
Fats	butter and other fats as desired (note restrictions under *Foods to Be Omitted*)
Vegetables, potatoes	as desired, except creamed; include 2 servings green or yellow vegetables and at least 1 raw vegetable daily (the last may be omitted for very young children); rice may be substituted occasionally for potatoes
Fruits	as desired; 3 servings daily; include citrus fruit once a day
Soups	all clear and vegetable soups; cream soups thickened with cream, cornstarch, or potato flour only
Desserts	any of the following: gelatin, fruit gelatin; ice or sherbet; homemade ice cream; custard; Junket; rice pudding; cornstarch pudding (homemade); or blanc mange, if thickened with cornstarch
Beverages	milk; fruit juices; ginger ale; cocoa (read label to see that no wheat flour has been added to cocoa or cocoa sirup); for adults, add: coffee (made from ground coffee); tea; carbonated beverages
Sweets	sugar, white or brown; molasses; jellies and jams; honey; corn sirup

Foods to Be Omitted

Meats, fish, and poultry	meat patties or meat, fish, or chicken loaf made with bread or bread crumbs; croquettes; breaded meats, fish, or chicken; chili con carne and other canned meat dishes; cold cuts, unless guaranteed pure meat; bread stuffings
Gravies, sauces	all gravies or cream sauces thickened with wheat flour
Bread	all bread, rolls, crackers, cake, and cookies made from wheat or rye; Ry-Krisp; muffins, biscuits, waffles, pancake flour and other prepared mixes; rusks; zwieback; pretzels; any products containing oatmeal, barley, or buckwheat; breaded foods; bread crumbs
Cereals and cereal products	all wheat and rye cereals; wheat germ; barley; oatmeal; buckwheat; kasha; noodles, macaroni, spaghetti, dumplings
Fats	commercial salad dressings, except pure mayonnaise (read labels)
Vegetables	any prepared with cream sauce or breaded
Soups	all canned soups, except clear broth; all cream soups, unless thickened with cream, cornstarch, or potato flour
Desserts	cakes, cookies, pastry; commercial ice cream and ice cream cones; prepared mixes, puddings; all homemade puddings thickened with wheat flour
Beverages	Postum, malted milk, Ovaltine (read labels on instant coffees to see that no wheat flour has been added); for adults: beer, ale
Sweets	commercial candies containing cereal products (read label)

WARNING: *Read labels on all packaged and prepared foods.*

We have treated ten patients with non-tropical sprue by this diet—nine women and one man whose ages range from twenty-two to sixty-two years and who have had this disorder from a few months to many years. There has been a dramatic clinical response in eight of these ten with subsidence of diarrhea and malodorous steatorrhea, return of appetite and strength, disappearance of abdominal distention, edema, and of the evidences of multiple vitamin deficiency. Recovery has begun a few days to a month or so after initiation of therapy. These periods of remission have ranged from two months to three years to date. Of the two individuals who did not respond, one abandoned the diet after only two weeks. Very recently she has returned to it and is doing well. The other patient was not followed closely enough to determine whether she adhered to the program, and we cannot evaluate the result.

In a metabolic balance study of two of the above patients, it was found that fat absorption increased from 35 per cent and 64 per cent to 94 per cent and 96 per cent, respectively, and that abnormal fecal loss of calcium, phosphorus, sodium, and potassium ceased. Concomitantly, stores of body nitrogen were replenished (5).

At present, we do not know whether wheat, rye, and oats must be permanently eliminated from the diet. Cautious re-introduction of these substances will be necessary to settle this point.

The reported results of other investigators of the efficacy of this therapy in non-tropical sprue vary somewhat. Anderson and his co-workers (6) found this diet successful in only five of twelve instances. However, Finlay *et al.* (7), using either oral cortisone or a wheat-, rye-, and oat-free diet obtained satisfactory results in twenty-four out of twenty-seven cases. Several other reports of its use in one or a few patients are favorable.

RECIPES

Southern Corn Muffins

1 c. boiling water
1 c. white corn meal
½ c. milk
½ tsp. salt
2 tsp. baking powder
1 Tbsp. soft butter or margarine
1 egg, well beaten

Pour boiling water over corn meal. Beat in milk, salt, baking powder, butter, and egg. Pour into very well greased glass muffin cups. Bake 25 to 30 min. in a 475°F. oven. Serve hot. *Yield:* 9 medium-size muffins.

Crisp Corn Pone

1 tsp. bacon drippings
½ c. boiling water
½ c. corn meal
½ tsp. salt
1 Tbsp. sugar

Add shortening to boiling water. Stir in corn meal, salt, and sugar and stir over low heat until mixture thickens. Spread mixture on well greased 9-in. pie pan. Dot with butter or margarine. Bake in 450°F. oven for 20 min. Place under preheated broiler about 5 min. until lightly browned. Cut in pie-shaped pieces and serve with butter.

Rice Flour Bread

1 c. unsifted rice flour
½ tsp. salt
3 tsp. baking powder
4 Tbsp. sugar
2 egg yolks
4 Tbsp. vegetable shortening
½ c. milk
2 egg whites, well beaten
1 ripe medium banana

Combine and sift flour, baking powder, and salt. Cream softened shortening; then cream with sugar until well blended. Stir in unbeaten egg yolks. Add flour alternately with the milk, beating after each addition. Fold in the well beaten egg whites. Mash banana well and fold in mixture. Spread batter into well greased 8 by 4 by 3 in. loaf pan. Bake in preheated oven at 325°F. about 45 min. until crumb is dry when tested with tooth pick. If a browner loaf is desired, temperature may be raised to 450°F. for the last 5 min. of baking. Remove bread from oven. Let stand 5 min. Loosen loaf with spatula and turn out on rack. Cool before slicing.

Rice Flour Muffins

1 c. unsifted rice flour
½ tsp. salt
3 tsp. baking powder
¼ c. vegetable shortening
¼ c. sugar
2 egg yolks
¾ c. milk
2 egg whites, well beaten
½ tsp. vanilla, lemon, or almond flavoring

Sift rice flour, baking powder, and salt together twice. Cream softened shortening, add sugar, and cream together. Stir in egg yolks. Add flour mixture alternately with milk, beating after each addition. Fold in well beaten (but not dry) egg whites. Spoon into a well greased muffin tin. Bake 30 min. in a 325°F. oven or until lightly browned. *Yield:* 6 muffins.

Rice Flour Sponge Cake

2 eggs separated
⅓ c. sugar
¼ c. rice flour, sifted twice before measuring
1 tsp. lemon juice
grated rind of ¼ lemon
dash of salt

Sift rice flour, sugar, and salt together. Beat egg yolks until thick and lemon colored. Add lemon juice and rind to egg yolks. Beat egg whites until stiff but not dry. Fold egg yolk mixture and flour mixture alternately in small amounts into beaten egg whites with rubber spatula. Pour into a small loaf pan lined with wax paper. Bake at 350°F. for 25 to 30 min.

Rice Flour Brownies

2 squares (2 oz.) unsweetened chocolate
½ c. shortening (margarine)
1 c. sugar
2 eggs
⅔ c. rice flour, sifted twice before measuring
½ tsp. baking powder
½ tsp. salt
½ c. chopped nuts

Melt chocolate and shortening in double boiler over hot water. Remove pan from hot water and beat in sugar and eggs. Sift rice flour, baking powder, and salt together and stir into chocolate mixture. Add nuts and mix. Spread into a greased 8-in. square pan. Allow mixture to stand ½ hr. before baking. Bake in a 350°F. oven for 30 to 35 min. When done, slight imprint is left when top is touched. Cool slightly; cut into squares. *Yield:* 16 2-in. squares.

Protein-Bound Glutamine as Cause of Sprue

The Dutch investigators referred to above, reported in their original papers that when children with celiac disease were placed on diets free of wheat and rye cereals, there was a notable decrease of fat excretion in the stools. On further investigation they found that two of the protein fractions of these cereals, gluten and gliadin, were responsible for the return of excessive fat excretion, but that the wheat starch did not have this effect. In one patient, oatmeal was also found to increase fat excretion. However, corn and rice cereals in addition to wheat starch were well tolerated.

In a more recent paper, van de Kamer and Weijers report (8) that it is the quantity of protein-bound glutamine in any given protein that is responsible for the symptoms of celiac disease. Since this is high in oats, barley, rye, and wheat proteins, it explains why these foods must be eliminated from the diet. Rice, corn, and buckwheat proteins contain a lower ratio of protein-bound glutamine and are therefore well tolerated. They found this true also of beef, cod, milk, egg, potato, and some of the legume proteins, all of which are inoffensive.

Eliminating Gluten and Gliadin

When we attempted to formulate a diet "free" of gluten and gliadin for use in patients with celiac disease and sprue, only the earlier papers of Dicke *et al.* were published. They indicated the causative agents to be the two major proteins found in most cereals, although rice and corn, which they reported as harmless, are known to contain small quantities of glutelin. Since little was known at that time about the reason that one cereal caused symptoms while another did not, it was decided to omit all cereals from the diet except those which the original investigators had found to be well tolerated, i.e., corn meal, rice flour, and wheat starch. It would now seem that buckwheat might also be included, although at present there are no data as to its effect on patients with sprue or celiac disease.

The next problem was to list foods permitted and foods to be avoided on such a diet. From the accompanying chart, it can be seen that the problem is not as simple as it may seem. Not only is wheat used in many foods as a thickening agent, but it also serves as a filler or a binder, as in some commercially prepared mayonnaise. Wheat gluten may also be used in the same manner. Even the warning to read labels may not always alert the doctor or the patient. In one instance (not in our hospital), a corn muffin mix was used as a bread substitute without the realization that it contained a large amount of wheat flour. Needless to say, there was no improvement in the patient's status.

It became necessary also to devise some satisfactory recipes using corn meal, rice flour, and wheat starch. Some of these are included at the end of this paper. In recipes not dependent on the gluten properties of wheat, it was found that ¾ cup rice flour could be substituted for 1 cup wheat flour. It was also learned that placing the dough mixture (with the exception of the sponge cake and muffin recipes) in the refrigerator for half an hour before baking gave a less granular texture than when this was not done.

Terminology

This brings us to the nomenclature of the diet. Dicke, Weijers, and van de Kamer refer (3) to it in their papers as "wheat free." Other investigators have called it the "gluten-free" diet, omitting all reference to gliadin. Since all cereals contain varying quantities of either gluten alone or both gliadin and gluten, the term "free" is incorrect. In view of the latest findings of the Dutch investigators, it would seem best at the present time to use the term "wheat-, rye-, and oat-free diet" as we have done here, despite its awkwardness. However, no matter what this diet will eventually be called, it has been most gratifying to see its results—sometimes in a matter of days—as an underweight, malnourished, often edematous patient obviously begins to improve.

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A REVIEW

Lysine in Milk Proteins in Relation to Infant Needs

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EACH OF the amino acids known to be essential for animal life has had its share of attention in the feeding both of infants and adults. Lysine has recently been in the spotlight; there appear to be a number of reasons.

It is one of the amino acids affected by heat in the cooking and processing of foods. It is one of the few now manufactured commercially in quantities and at costs that make it practicable for use in fortifying foods. The lysine content of many cereal proteins is low. Some cereal foods and feeds are being fortified with this amino acid.

That the protein composite of milk provides adequately the lysine needs of the infant when used in the feeding formula has generally been accepted. Lately this has been questioned. The purpose of this paper is to examine available information on the subject.

Infant Requirement for Lysine

At the present moment the amount of lysine required by infants is a matter of controversy. Albanese and co-workers conclude from their studies that the requirement is in the neighborhood of 180 to 210 mg. per kilogram body weight per day (1). More recent work by Snyderman, Holt, and co-workers points to a requirement of but 90 mg. per kilogram per day (2).

The lysine content of the milk protein composite of cow's milk and of human milk has been determined in a number of laboratories. While the range of values reported is extremely wide, the National Research Council concludes (3) that a fair average should be 6.6 per cent lysine in the protein of mature human milk and 7.8 per cent in cow's milk protein.

Infants on breast milk are believed to receive 2 to 2.5 gm. protein per kilogram per day; those on cow's milk formulas, around 3.5 (4, 5). By simple arithmetic, then, it can be calculated that human milk-fed babies may be recovering 165 mg. lysine per kilogram per day when they ingest 2.5 gm. protein, and those on formulas prepared from cow's milk, 273 mg. lysine.

Heated Milks and Lysine

Lysine is one of the amino acids rendered nutritionally less effective when proteins are highly heated. The change may be due in part to destruction and in part to a rearrangement of the structure of the protein molecule so that the lysine is less available for digestion and metabolism. Inasmuch as most infant formulas are prepared from evaporated milk, it is well to examine the data on this form of cow's milk.

First of all, it should be noted that in a number of laboratories the biologic value of evaporated milk protein has been determined by animal experimentation. Schroeder, Iacobellis, and Smith (6), using commercial samples of evaporated milk, as well as paired samples of milk before and after autoclaving at heat exposures parallel to those used in the manufacture of the milk, measured nutritive values of protein with dogs. Hodson reported (7) nutritive studies on evaporated milk proteins using rats. In both papers, the authors review the published reports of other researchers and conclude from their data and those of others that the proteins of evaporated milk and "fresh" milk are nutritionally equal for all practical purposes, for animals and for man.

As to the amino acid content of the protein in commercial evaporated milk, the most exhaustive studies have been those of Hodson and Krueger (8). On samples from six areas of the United States, they report a range of 7.2 to 7.7 per cent lysine, with an average of 7.4 (basis N $\times$ 6.38). Paired samples of milk before and after exposure to the heat of sterilization indicated an 11 per cent reduction in lysine. Storage for one year caused no further reduction.

Mauron *et al.* (9) recently made lysine determinations on a sample of evaporated milk (European manufacturing process) using enzyme, together with acid, hydrolysis. They concluded that compared with "fresh milk," there was an 8.4 per cent "destruction" of lysine and 11.2 per cent "inactivation." From this they estimated that in the process employed for transforming raw milk into evaporated milk there was a total "deterioration" of 19.6 per cent, leaving 80.4 per cent of the original lysine

"available." The authors point out that "it remains to be seen how close this *in vitro* availability corresponds to the *in vivo* availability."

These researchers do not state what they conclude to be the actual per cent of available lysine in evaporated milk protein; however, the application of their data points to a figure possibly as low as 6.9 per cent.

It is obvious that the methods and results reported from the Mauron laboratory (in Switzerland) remain to be confirmed by others, and particularly in the United States where a different process is used in manufacturing evaporated milk.

Table 1 includes data reported above and calculations from those data. A simple inspection demonstrates that the lysine in a feeding formula prepared from cow's milk, either fresh or evaporated, is well above either of the infant requirement levels published, and, indeed, well above the amount of lysine received by the average breast-fed baby.

Percentage Measure of Adequacy

Hansen and Carlson, in a review of the literature (10), find evidence for the conclusion that a protein containing 5.5 per cent lysine and a diet containing 1 per cent lysine provide optimum growth in animals. Sarett (11) reaches similar conclusions. The percentage approach to amino acid adequacy is additionally supported by the fact that amino acid requirements vary within limits almost directly with protein intake (12).

Egg protein is rated as an "ideal" protein. It contains 6.5 to 7.0 per cent lysine, less than that in milk protein. This fact also is offered as evidence that milk protein should be regarded as adequate with respect to this amino acid (13).

Recorded in Table 2 are the following: percentage of protein and of lysine in total solids of human milk and cow's milk as calculated from National Research Council data (3) and calculations of per cent protein and of lysine in the evaporated milk "standard" formula suggested by Hill (5), using the lysine percentages published by Hodson and Krueger (8).

TABLE 1 Lysine content of human and cow's milk protein

TYPE OF MILK PROTEIN	LYSINE
Average human milk protein	165 mg./2.5 gm.
Cow's milk protein	
Unprocessed milk (NRC [3], 7.8% total protein)	273 mg./3.5 gm.
Evaporated milk (Hodson and Krueger [8], 7.4% total protein)	259 mg./3.5 gm.
Evaporated milk (Mauron [9], 6.9% [?] total protein)	242 mg./3.5 gm. (?)
Infant lysine requirement	
Snyderman, Holt *et al.* (2)	90 mg./kg./day
Albanese *et al.* (1)	180-210 mg./kg./day

(The Hill formula, containing as it does added carbohydrate, can be considered typical of milk formulas generally in use.)

The data show that the cow's milk formulas usually prescribed for infants not only contain protein well above the 5.5 per cent lysine level but also that the lysine content is greater than 1 per cent of the "diet."

Note that the human-milk "diet" supplies only 0.64 per cent lysine. How much a lower level of lysine than the 1 per cent theoretical can serve satisfactorily may depend on a number of factors yet to be determined.

Scoring Proteins from Amino Acid Composition

The importance of good amino acid balance in dietary proteins is well established. This has led to a number of proposals for "scoring" proteins based on the known percentages of essential amino acids.

One of the earliest proposals was that of Mitchell and co-workers, who adopted whole egg protein as standard. "Percentage deficits" were calculated for each essential amino acid. Thus they arrived at a "chemical score" for any protein of known composition. Refinements were later made in their scoring system, and an "Essential Amino Acid Index" was evolved (14).

Steffee and co-workers (15) were apparently the first to evaluate proteins by employing "proportionality ratios" taking the tryptophan content of each protein as unity. Such ratios were calculated for all the essential amino acids in the protein. The authors claimed only "broad significance" for their rating system.

Lysine: Tryptophan Ratio (L/T)

Albanese and associates (1) have emphasized the lysine: tryptophan ratio (L/T) in relation to infant feeding. They contend that the growing baby's lysine requirement is in order of 180 to 210 mg. per kilogram per day and that of tryptophan is 30 mg. They propose as optimum an L/T ratio of 6 to 7. In support of their proposal, they calculate the ratios of a number of mammalian tissues and find them

TABLE 2 Per cent lysine in the "diet"

TYPE OF "DIET"	PROTEIN IN TOTAL SOLIDS	LYSINE	
		In protein	In the "diet" (total solids)
	%	%	%
Average human milk	9.7	6.6	0.64
Average cow's milk	26.0	7.8	2.03
Evaporated milk "standard" formula (5,8)	17.9	7.4	1.32

to be about of that order. They admit that human milk gives the baby less lysine and also that the L/T is lower. However, they suspect cow's milk and particularly evaporated milk to have ratios that are lower than optimal for providing the baby with lysine

Under the assumption that the addition of lysine would prove to be of benefit to infants, Albanese *et al.* (16) observed a number of babies on "evaporated milk and fresh milk formulas" with and without the addition of lysine. They found in some cases, mostly babies that were "nutritionally substandard," better growth when lysine was added to the formulas. From this, they propose that the protein value of infant foods including cow's milk can be improved by supplementation with lysine.

Table 3 records lysine and tryptophan data in a number of forms of milk. Comparisons are made with infant requirement figures reported from the Albanese and from the Snyderman-Holt laboratories. Included are data on egg protein and certain tissue proteins as published by Block and Weiss (12).

From an inspection of these data, one must conclude that insofar as the L/T ratio can be accepted as a criterion of lysine adequacy, the evidence is just as much in the direction of accepting cow's milk protein as satisfactory as the reverse. The same holds for the protein of evaporated milk, even if one recognizes the single determination reported from the Mauron laboratory. That the high L/T ratios of tissue proteins are frequently the result of low tryptophan content rather than high lysine is well illustrated.

TABLE 3 Per cent of lysine and tryptophan in various proteins and lysine: tryptophan ratios

PROTEIN	LYSINE	TRYPTOPHAN	LYSINE: TRYPTOPHAN RATIO
Source of Protein			
	%	%	
Human milk (3)			
Mature	6.6	1.8	3.7
1-5 days	6.0	1.9	3.2
6-10 days	7.1	1.8	4.0
Cow's milk			
Unprocessed (3)	7.8	1.5	5.2
Evaporated			
Hodson and Krueger (8)	7.4	1.2	6.2
Mauron (9)	6.9 (?)	1.6	4.3 (?)
Whole egg (12)	6.9	1.6	4.3
Tissues (12)			
Muscle (mammal)	8.5	1.1	7.7
Whole Blood	9.2	1.4	6.6
Liver	7.5	1.6	4.7
Whole animals			
Mammals	7.1	0.8	8.9
Fowl	6.9	1.0	6.9
Infant Requirements			
	mg./kg./day	*mg./kg./day*	
Albanese *et al.* (1)	180-210	30	6-7
Snyderman and Holt (2)	90	30	3.0

The emphasis placed by the Albanese group on the lysine:tryptophan ratio and the assumption that there may be a lysine deficiency in cow's milk formulas that ought to be rectified by fortification have come in for criticism on a number of grounds:

(a) The (later) determinations by Snyderman *et al.* (2), pointing to an infant lysine requirement about half that proposed by Albanese, is concluded to be more acceptable (17). This conclusion is supported by the fact that infants on human milk thrive at the lower lysine levels.

(b) The infant feeding study reported by Albanese, in which lysine was added to the formulas, is questioned as being inconclusive (17, 18). That the apparent dietary lysine deficiency could have resulted from an abnormality in the digestive system in the infants is suggested by Griffith and Swendseid (19).

(c) The use of tryptophan, or any other amino acid, as a denominator in an amino acid ratio can lead to erroneous conclusions. If the percentage of trptophan in the protein is low, the other acids appear good in comparison (2, 10).

(d) The variations in amino acid values of proteins reported in the literature can grossly affect the usefulness of any scoring system based on amino acid content (10, 14). Comparative studies published by Rutgers University (20) illustrate how widely divergent can be the results of analyses of the same protein in different laboratories.

(e) The danger of producing amino acid imbalances by the addition of lysine, unless and until the evidence for such addition is conclusive, is suggested by several authors (2, 13, 17, 21, 22).

Summary and Conclusions

Infant formulas prepared from cow's milk, either unprocessed or as evaporated milk, provide the infant with more lysine per unit of body weight per day than is required, whether the Snyderman-Holt or the Albanese figures for requirement are accepted. Also, more lysine is supplied than the baby receives from average human milk.

The level of lysine in the cow's milk protein composite (average 7 to 8 per cent) is above that contained in human milk protein (6.6 per cent) and egg protein (6.5 to 7 per cent). There is support for the conclusion that a protein is a satisfactory carrier of lysine if it runs higher than 5.5 per cent.

The amount of lysine in the "diet" of an infant on an evaporated milk formula is well above 1 per cent, which has been suggested to be a satisfactory level. Such a formula carries double the per cent of lysine found in human milk.

The L/T ratio of cow's milk protein compares favorably with that of human milk, with egg protein, and with the ratio of lysine to tryptophan required by the infant as determined in the Snyderman-Holt laboratory. The higher ratios in certain tissue proteins are frequently due to low tryptophan values.

The desirability of fortifying cow's milk formulas with lysine is not proved. Until there is evidence that such is needed, the possible danger of creating an amino acid imbalance by such addition should not be overlooked.

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Herb Blend

To enhance the palatability of low-sodium diets, herbs and spices may be used judiciously, particularly for meat which must be prepared without adding salt. Herb blends and poultry seasonings may be purchased from various commercial firms and used, provided they do not contain salt or sodium. Read the label to be sure of the contents before buying.

Or, you may wish to make your own mixture, such as the following recipe from *Gourmet Cooking for Cardiac Diets* by Florence Field (Cleveland: World Publishing Company, 1953):

1 tsp. dried basil
1 tsp. dried marjoram
1 tsp. dried thyme
1 tsp. dried oregano
1 tsp. dried parsley
1 tsp. dried savory
1 tsp. ground cloves
1 tsp. ground mace
½ tsp. ground nutmeg
1 tsp. black pepper
½ tsp. cayenne

Studies with Breaded Crab and Oyster Meat

Antibiotic Residues in Shellfish after Cooking[1]

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EXPERIMENTAL PRESERVATION of foods by antibiotic treatment is well documented, and extension of storage life of some fresh foods that have been so treated has been demonstrated (1—3). However, before such treatment can be applied commercially, the Food and Drug Administration must be convinced that biologically active residues of the antibiotic will not be present in the food at the time of consumption[3].

The Food and Drug Administration recently certified chlortetracycline[4] and oxytetracycline[5], two broad-spectrum antibiotics, for use in poultry processing (4,5). It had been satisfactorily demonstrated that these antibiotics were partially destroyed in storage and that cooking by usual methods destroyed the remainder; residues were undetectable in the heated products. Similar demonstrations will doubtlessly be required before certification is given for other foods so treated.

It should be borne in mind that such foods as beef, crab meat, oysters, and shrimp may be eaten raw or after only a modicum of heating. With these foods, if treated with antibiotics, continued ingestion might occasion a sensitization in some individuals.

Engel states (6): "From an immunological point of view it can be feared, that if certain human beings are continually exposed to an antibiotic, they will produce antibodies against this factor. If then, later this is applied to them for a medical purpose, an untoward reaction may be anticipated, which both inactivates the effect of the antibiotic and may at the same time deteriorate the patient's general condition." Many of these medical objections would be vitiated if the antibiotic were destroyed, either by chemical activity in the food, or during heat treatment prior to consumption.

A recent study of the antibiotic preservation of fresh crab and oyster meats revealed the presence of biologically active residues in excess of that presently allowed for fresh poultry[6]. Benarde and Littleford (7) noted that after fifteen days' storage at 1° — 3° C., fresh crab meat contained from 1.0 to 7.0 mcg. per gram of antibiotic, depending on the concentration of the initial dip solution, which ranged from 5 to 120 mcg. per milliliter. Shucked oysters dipped in 5 and 15 mcg. per milliliter solutions contained from 1.2 to 11.0 mcg. per gram respectively after fifty days storage at 1° — 3° C. Such residues would, at this time, prohibit antibiotic treatment from attaining commercial utility.

However, a good deal of fresh crab meat is used to prepare crab cakes and deviled crabs, while oysters are breaded and fried. In these instances, the heat of frying might be sufficient to destroy the antibiotic residues. It was to determine whether this is true that the present work was undertaken.

Method and Material

Crab cakes were prepared by using freshly picked, regular grade[7] meat of the blue-crab, *Callinectes sapidus* Rathbun, previously dipped for 2 min. in antibiotic solutions in a manner already described (7). They contained sea food seasoning, Tabasco sauce, whole beaten egg, and bread. Breading crumbs were applied prior to frying in vegetable oil.

Select and extra-select[8] shucked oysters, *Crassostria virginica*, were dipped in whole beaten eggs, then rolled in a commercially available breading, and similarly fried in vegetable oil.

Both items were fried until our technician decided they were "done." This was the only criterion employed. Thus, the procedure can be said to be "the usual"—not a laboratory concoction.

Several sizes of crab cakes, each containing 10 or 20 p.p.m. of chlortetracycline or oxytetracycline,

[1]Received for publication May 29, 1957.

[2]Sincere appreciation for able technical assistance is accorded Dorothy Collins and Paul Dorsey, members of the laboratory staff.

[3]Less than 0.025 p.p.m. is presently acceptable as negligible residue.

[4]Product of American Cyanamid Company, New York, New York.

[5]Product of Chas. Pfizer Co., Inc., Brooklyn.

[6]As yet, commercial application of antibiotics to seafood has not been approved in the United States.

[7]Muscles of the pereiopods.

[8]These are the largest oysters, approximately 20 per pint.

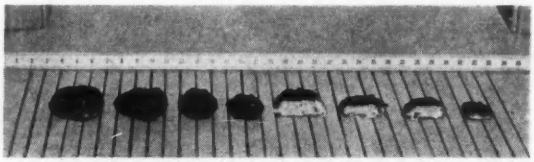

FIG. 1. *Four sizes of crab cakes used in this study. Left to right: 3 in. circumference, 1 in. thick; 3 in. circumference, ½ in. thick; 2 in. circumference, 1 in. thick; and thin, small cake. Four samples to right show thickness.*

were prepared in order to assess the heat penetration which would be expected to vary with the size and its effect on the stability of the antibiotic. Cakes were prepared both larger and smaller than would generally be encountered, as well as sizes normally found in homes and public eating establishments. The largest size, approximately 1 by 3 in., averaged 145 gm.; the smallest averaged 35 gm.; and those which were ½ by 3 in. and ½ by 2 in.—sizes more commonly found in homes and commercial establishments—averaged 75 and 100 gm., respectively. These size variations are seen in Figure 1. Left of center are the total aspects of the four, right of center are the cross sectional representations.

To obtain internal temperatures of both the crab cakes and breaded oysters, 24-gauge, copper-constantin thermocouple wires were inserted into the approximate center of each item. The terminal ends were connected to a Brown portable potentiometer Model 126 W3, from which temperature readings were obtained. Figure 2 shows the thermocouple leads extending from the potentiometer and inserted in the crab cakes and frying oil.

To determine the residual antibiotic in the crab cakes and oysters, microbiologic assays for chlortetracycline were performed by American Cyanamid Company, while Chas. Pfizer and Company determined oxytetracycline residues. In certain instances, as a check, the Antibiotics Division of the Food and Drug Administration assayed the foods for the presence of residual amounts of both antibiotics.

Results and Discussion

The time-temperature relationship for each size of crab cake can be seen in Figure 3. As might be expected, the largest cake required the longest time to reach the "done" stage. Since it was a large cake, heat penetration beyond the surface was greatly retarded. A temperature of 143°F. was recorded at its approximate center when it was considered "done." Conversely, the smallest cake heated most rapidly; it was "done" in 5 min., with an internal temperature of 176°F. Seven min. were required to cook the 75-gm. cake (½ by 2 in.) with an internal temperature of 150°F., and the 100-gm. cake was considered "done" after 14 min. with an internal temperature of 176°F. similar to the smallest cake.

FIG. 2. *Portable potentiometer (black case) and Simplytrol (light case), direct reading temperature indicators being used to obtain temperature readings of crab cakes and frying oil.*

Thus comparatively short heating periods at relatively low temperatures are sufficient to cook crab cakes in the usual manner.

Japanese workers (8, 9), investigating the effect of cooking temperatures on survival of bacterial pathogens in fish cakes (kamaboko and hampen), obtained internal temperatures ranging from 149° to 176°F., which are similar to those reported here.

TABLE 1. Residual antibiotic concentrations in four sizes of fried crab cakes*

ANTIBIOTIC	CONCENTRATION OF ANTIBIOTIC	RESIDUE
Cake 3 by 1 In., Approximately 140 Gm.		
	p.p.m.	*mcg./gm.*
Oxytetracycline	10	3.19
Chlortetracycline	10	0.75
Oxytetracycline	20	0.75
Chlortetracycline	20	0.94
Cake 3 by ½ In., Approximately 100 Gm.		
Oxytetracycline	10	2.15
Chlortetracycline	10	2.64
Oxytetracycline	20	0.45
Chlortetracycline	20	0.76
Cake 2 by ½ In., Approximately 75 Gm.		
Oxytetracycline	10	0.40
Chlortetracycline	10	0.75
Oxytetracycline	20	1.0
Chlortetracycline	20	1.6
Thin, Small Cake, Approximately 40 Gm.		
Oxytetracycline	10	0.37
Chlortetracycline	10	0.88
Oxytetracycline	20	0.64
Chlortetracycline	20	1.2

*Approximate cooking times ranged from 5 to 15 min.

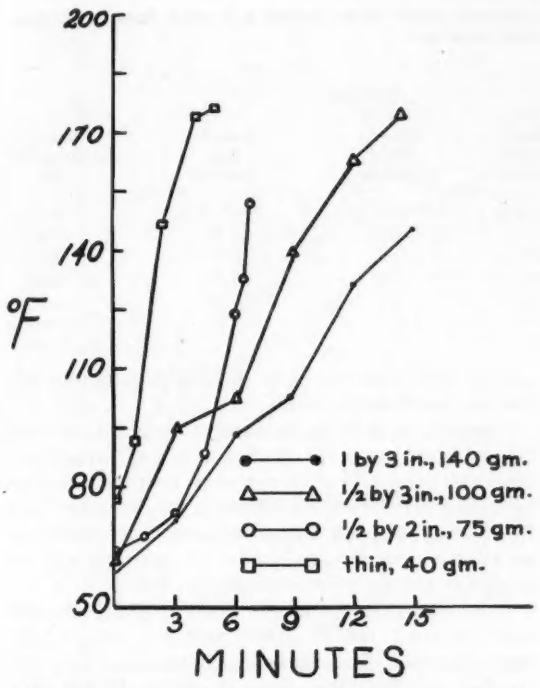

FIG. 3. *Heat penetration in breaded oysters treated with oxytetracycline or chlortetracycline at 10 and 20 p.p.m.*

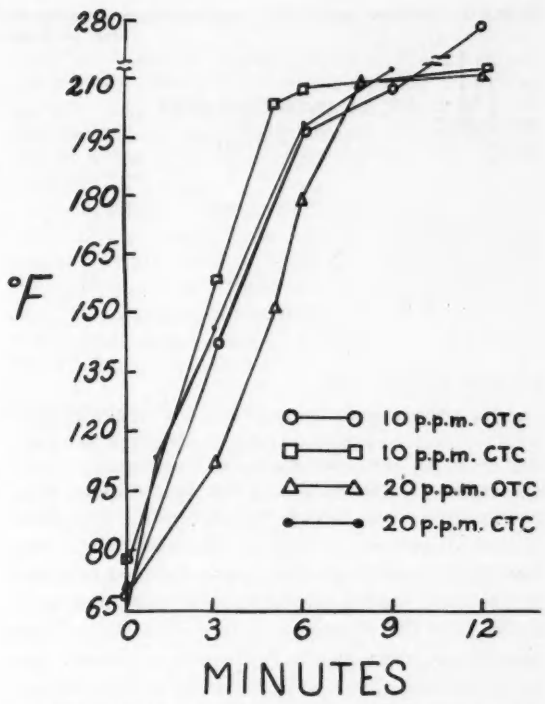

FIG. 4. *Heat penetration in four sizes of crab cakes treated with oxytetracycline or chlortetracycline at 10 and 20 p.p.m.*

Bearing in mind the heat penetration data of Figure 3 while reviewing Table 1, it is seen that a temperature of 176° F., arrived at either within 5 min. or after 14½ min., was not sufficient to reduce the antibiotic concentration to negligible levels. In fact, both groups contain values above 1 p.p.m.

Although comparisons between fried crab cakes and fried white fish (cod, haddock, and sole) may be tenuous, it is of some value to note that Shewan (10) found as much as 0.7 p.p.m. of chlortetracycline in these fish fried for 7 to 10 min. at 100°C.

It has also been reported (11) that the half-life of chlortetracycline in boiling distilled water is ½ min. In boiling buffers at *p*H 6.0, the half-life increased to 2 min., and in fish-flesh during cooking, the half-life was 5 to 8 min.

Generally, the assay data for chlortetracycline and oxytetracycline reported here for fried crab cakes are considerably higher than those obtained with finfish steamed at 100°C. for 30 min. (10).

Table 1 contains a few irregular residue figures for chlortetracycline and oxytetracycline. These may be explained by several factors: dipping crab meat in antibiotic solution may not allow all meat particles to be bathed equally; a pound of treated meat may therefore contain a range of concentrations. This is brought out by the assay procedure which utilizes only a small portion of any one cake—one cake may yield several different residue values. Such seeming incongruities are brought into sharper focus in Table 2 which lists the assay data for oysters in storage for fifty days. The several figures which appear to increase with increased storage are probably reflections of this differential uptake among individual oysters used for assay from any one container.

Figure 4 indicates the time-temperature relationships for breaded oysters "blown" in 5 and 15 p.p.m. solutions of oxytetracycline and chlortetracycline. It is seen that 9 to 12 min. were required to fry these comparatively large oysters. Being relatively thin, however, they attained temperatures of 215° and in one instance, 280°F.

Table 2 indicates that the breaded oyster which had been treated with 5 p.p.m. oxytetracycline and which reached a temperature of 280°F. had a residual of 0.14 p.p.m. The chlortetracycline-treated meat had an internal temperature of 215°F. and a residual of 0.36 p.p.m. Those dipped in 10 p.p.m. of oxytetracycline and chlortetracyline and residuals of 0.36 and 0.91 after 9 to 12 min. and attained a temperature of 215°F. In all instances, the residuals were less than 1 p.p.m.

Should studies prove the tetracyclines to increase effectively the fresh storage life of shellfish, official certification for their use would probably be sought.

TABLE 2 Residual antibiotic concentrations in commercially shucked oyster meats treated in blow tank for 3 min., and in fried, breaded oysters

ANTIBIOTIC	CONCENTRATION OF ANTIBIOTIC	RESIDUE				
		In fresh oysters, no storage	After 5 days' storage	After 21 days' storage	After 50 days' storage	In fried, breaded oysters
	p.p.m.	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*
Oxytetracycline	5	4.9	2.3	2.47	1.2	0.14
Chlortetracycline	5	2.9	2.0	2.4	3.1	0.36
Oxytetracycline	15	5.35	4.9	5.1	3.43	0.36
Chlortetracycline	15	9.0	8.8	11.6	11.0	0.91
None	0	0	0	0	0	0

COOKING FROZEN CRAB

As a sizable quantity of fresh crab meat is used commercially to prepare frozen crab cakes and deviled crab, the question was posed: if presently available commercial items should use treated meat, what residues might be expected after cooking according to label directions? To answer this question, frozen deviled crab and crab cakes were obtained from retail outlets. Copper-constantin thermocouples were placed into the approximate center of these items before they were placed in the oven. One set was cooked according to label directions while a second set was cooked as might be done by persons not following specified directions.

Figure 5 represents the heat penetration into two deviled crab items. The curve labelled "preheated" represents the data obtained when heating was done according to directions specified on wrapper; the "cold oven"-labelled curve indicates the time-temperature values that might be obtained by persons unable to use an oven preheated to 400°F.

It is seen that the larger cakes in the preheated oven attained 156°F. after 20 min.—the cooking time specified. The deviled crab in the cold oven reached 126°F. after an equal period. If one com-

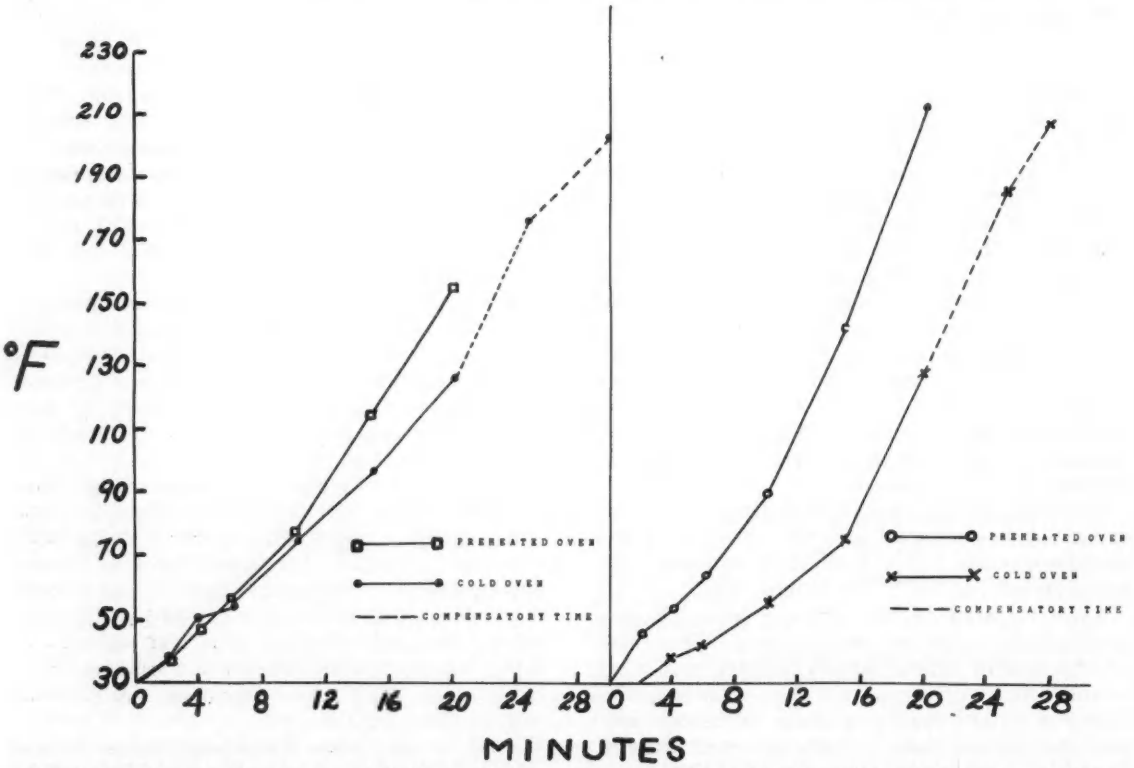

FIG. 5. *Heat penetration in precooked frozen deviled crab cakes (2½ by 1½ in. at left, 2¼ by 1¼ at right) in preheated and cold ovens.*

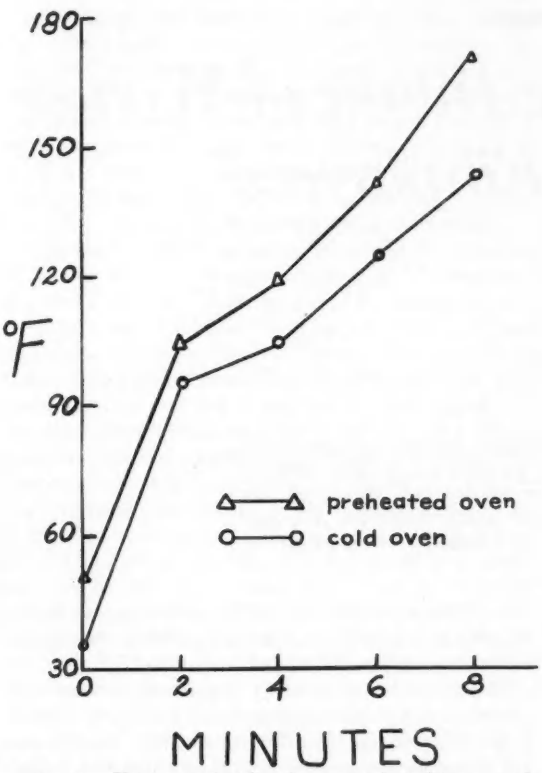

FIG. 6. *Heat penetration in precooked frozen crab cakes 2¾ by ¾ in.) in preheated and cold ovens.*

pensates for the lack of preheating by extending the cooking period 5 min. a temperature of 176°F. is obtained. The smaller deviled crab in the preheated oven reached 214° F. after 20 min. while its duplicate in the cold oven attained 130°F. An additional 5 min. at 400° F. brought the internal temperature up to 210° F. Figure 6 contains the data for precooked frozen crab cakes. This product was similar in size to the 100-gm. cake seen in Figure 3. In a preheated oven, the cake reached 170°F., while the cold-oven mate attained 145°F. after 8 min. at 300°F.—the conditions specified on the wrapper.

When one considers the assay data obtained from antibiotic-treated crab cakes of similar size and internal temperature as untreated commercial cakes, it is not unreasonable to suggest that similar antibiotic residues could be expected.

Summary

Crab and oyster meats treated with various concentrations of chlortetracycline or oxytetracycline, two broad-spectrum antibiotics, were found to contain biologically active residues of these antibiotics after frying in the usual manner.

In addition, untreated precooked frozen deviled crab and crab cakes, obtained from retail outlets, were found to attain internal temperatures of a magnitude suggesting that similar amounts of antibiotic could be present when the food is eaten, should these products have been so treated.

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Birthplace of Mayonnaise

Mahon, the capital of the Spanish island of Minorca, is credited with being the birthplace of mayonnaise. In 1756, the Duke of Richelieu captured this Balearic island from the British at the beginning of the Seven Years War. One day the Duke's cook had no fuel for a fire and was unable to prepare a hot sauce for his master. By accident, he spilled some egg yolk in olive oil, and in mixing it cold, discovered mayonnaise, which takes its name from the town. The Duke later took credit for it, and took the recipe home with him and introduced it to the court of Louis XV.

Comparison of Non- and High-Absence Groups

Nutritive Intake of Women Factory Employees[1]

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Is there a correlation between dietary intake and absenteeism in industry due to illness? In this study, the dietary intake of two groups of women employees, one with no absences over a year's time, the other with an average of twenty-days' absence due to illness, is compared.

IN ANY study of absenteeism, emphasis on absence due to sickness is stressed because of frequency and magnitude of occurrence. Infections of the upper respiratory tract and diseases of the digestive tract account for more loss of time in industry than trade hazards and accidents combined (1). Since there are indications that natural resistance to disease depends to a degree on the nutritional state of the body, it may be postulated that poor dietary habits may be a pertinent factor in absenteeism.

Although general claims have been made that a well-nurtured employee is an insurance against absenteeism due to sickness, there is little published evidence to indicate a relationship between dietary status of employees and the incidence of such absences. Gehrmann (2) considers that in his organization, good dietary status is an important factor in an established low record of absences due to illness. Supplements of cod-liver oil have been credited with reducing industrial absences due to colds and respiratory ailments (3). Certain midmeal feeding practices have been associated with reduced absences (4). Vitamin supplementation has been found effective (5). High dietary scores based on eating habits were associated with less absenteeism than when the scores were low (6).

The adequate nutrition of industrial workers was a subject which received pointed attention during World War II (7–10). Results of these nutritional and dietary surveys indicated that numerous industrial workers were consuming inadequate diets. Investigations more recently reported on the dietary and nutritional status of industrial workers include findings of two studies on men and women in New York State (11, 12), men in New Jersey (13–15), and women in Virginia (16). These have yielded many valuable data but a possible relationship to absenteeism due to sickness has not been sought.

It is the purpose of this report to compare the dietary status of women working under the same conditions, but who had widely different records of absences due to sickness over a twelve-month period. A secondary objective is to show the effectiveness of a 24-hr. recall versus seven-day record.

Procedure

The subjects were urban women factory workers in a large food processing plant. Attendance and medical records were made available and served as the basis of the initial selections and the definition of the two groups. The twelve-month period was the calendar year 1955. No age limits were set. These workers had a long record of employment with the company and were paid an hourly wage which was one of the highest in the district for women factory employees. The "non-absence group" included women with no sickness absences. The criteria for the selection of the high-absence group were: a

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[2]The authors are grateful to Dr. Robert E. Olsen, Professor of Biochemistry and Nutrition, The Graduate School of Public Health, University of Pittsburgh, for providing the contact with the H. J. Heinz Company; to the H. J. Heinz Company for its interest and cooperation in making available its records; for the generous contribution of time, experience, and knowledge of personnel officers, and for the time given by the participants above and beyond the call of duty.

minimum of nine absences due to sickness during the year coupled with a record of numerous such absences over a period of years and a record of regular attendance at the plant medical department. The absences were not of sufficient length to qualify these workers for sick pay. Before returning to work a reason for absence had to be given, and if absent for three days or more, a medical examination was required to determine fitness for work.

The final selection of subjects was made after an interview with the workers in groups of about ten. The interview set forth the purpose, requested participation, and explained in detail the duties of participants. Dietary and other forms were shown and their keeping discussed and illustrated. The two groups which evolved were a non-absence group of 41, and a high-absence group of 31 with an average sickness absence of 23.3 days during the year. The causes of these absences are presented in Table 1. The physical characteristics are presented in Table 2. The initial objective had been groups as large as fifty. The survey was made in the summer of 1956 and due to lay-offs, vacation leaves, and a few failures to complete forms, this was not achieved.

A seven-day record of food eaten was kept by each participant. The form was similar to that used by the U. S. Public Health Service for recording food intake. A sheet of instructions accompanied it. A second interview was held individually. The completed forms were collected and the information checked for accuracy and completeness with each participant. The degree to which the record was representative of normal dietary habits was discussed. Data on social history were collected to supplement available company records.

As a cross-check on the seven-day record a 24-hr. recall was taken for one day at the time of the individual interview. The diets were calculated (17) for nutrient intake on the basis of the seven-day record and the 24-hr. recall for both groups. (Table 3).

TABLE 1 Causes of absences due to sickness in high-absence group

NATURE OF THE ILLNESS	PERCENTAGE OF ABSENCES
Diseases of the upper respiratory tract	36.7
Diseases of the digestive system	13.5
Infections other than those of the upper respiratory tract	8.5
Bodily stiffness or soreness	7.6
Muscular dystrophy*	6.6
Diseases of the genito-urinary tract	3.6
Accidental injuries	3.3
Headaches	2.2
Circulatory disorders	1.8
Teeth extraction	0.7
Unspecified causes	15.5

*Long-term illness of one subject.

Findings and Discussion

The groups were "middle aged" with an average subject age of 44.4 and 48.4 years. The high-absence group was the older; these women also averaged 7 lb. heavier and almost 1 in. shorter per person than did the non-absence group. Fifteen subjects, almost half, of this older and heavier group were 20 per cent or more overweight as judged by "desirable" height-weight tables (18). A little less than a third of the non-absence group was this much overweight. The economic stability of these subjects was attested by the fact that only one member in each group felt that food selection was severely restricted by monetary consideration. Although most subjects were first generation Americans, they represented a wide divergency of ethnic background. None had schooling beyond the twelfth grade, but the majority had more than eight years of education. In terms of family responsibilities, the forty-one members of the non-absence group as a unit cooked for eighteen other persons with only three of these under sixteen years of age. The high-absence, and smaller group of thirty-one, had greater home responsibility in that these women cooked for thirty-six other persons, ten of whom were under sixteen years old. These characteristics of the total sample may render it atypical and should be borne in mind.

The dietaries were calculated for average daily intake of calories, protein, fat, iron, calcium, vitamin A, and ascorbic acid. These data are presented as group averages in Table 3, along with the recommended allowances (18) calculated for a woman of comparable age, weight, and height. No calculations of thiamine, niacin, or riboflavin were made. Since enrichment of cereals is not required by legislation in this area and in this urban district a considerable quantity of unenriched baked products are sold, calculations for these nutrients would be meaningless.

TABLE 2 Characteristics of non-absence and high-absence groups

GROUP	NUMBER OF SUBJECTS	AGE	HEIGHT	WEIGHT	AVERAGE NUMBER OF ABSENCES	SUBJECTS OVERWEIGHT BY 20% OR MORE
		yr.	*cm.*	*kg.*		
Non-absence	41	44.4 ± 8.4	161.2 ± 9.6	63.5 ± 3.8	0	12 (29.2%)
High-absence	31	48.4 ± 7.8	159.0 ± 5.6	69.0 ± 4.4	23.3	14 (48.1%)
Difference by t-test	—	2.08*	1.26*	1.92*	—	—

*5% level of significance.

For all factors calculated, the non-absence group had higher nutrient intakes than the high-absence group which were statistically significant at the 1 per cent level. Caloric intakes for both groups are definitely below the allowances. At the time of the individual interview, this was recognized and efforts were made to check possible omissions. Little alteration in the records resulted. Many of the obese subjects were on self-restricted diets. They may well have done some "honest cheating" and adhered strictly to their ideas of a reducing diet for this period. Eight of the fifteen overweight subjects in the high-absence group had daily intakes as recorded for the period which ranged from 800 to 1160 calories. In the non-absence group, only one of the overweight subjects showed such severe food restriction. One may speculate on the stress involved by these women in completing a day's work and then looking after family responsibilities on such low caloric intakes. The possibility of nutritional imbalance, even though such efforts may be sporadic, cannot be overlooked. The feeling of guilt when not being so Spartan can only aid in the confusion resulting from such undirected efforts. Since weight loss was claimed to be very slow or non-existent, it would seem that frustration added to weakness might well be a factor in these records of high absences due to illness. Even assuming that these seven-day records may have resulted in underestimation of normal caloric intakes, the difference of caloric intake for the two groups is not likely to have altered markedly.

The average protein intake was adequate for the non-absence group, and considering the low caloric intake, it was fair for the high-absence group.

Fat has been estimated to provide approximately 40 per cent of the caloric intake of the normal American diet (18). The prevalence of overweight in these groups prompted the calculation of this dietary factor. For the non-absence group the value was 39.6 per cent, for the high-absence group 34.2 per cent of the total calories.

For the two minerals, calcium and iron, the intakes provided more than two-thirds the allowances for the non-absence group, while for the high-absence group, they were below this.

For vitamin A and ascorbic acid, there was a difference in favor of a higher intake for the non-absence group, but for both groups, these intakes approached or exceeded the allowances.

Habitual dietary practices seemed to account for these findings on nutritive intake. The sameness of the dietary pattern for the five-day work week, especially for breakfast and lunch, was marked. The breakfast was coffee or coffee and toast. Although the majority ate lunch at the company cafeteria which served an inexpensive hot plate, the usual lunch chosen was a ham sandwich with a salad or dessert. For the record week, only thirty-two subjects had any form of milk as a beverage. In contrast to the pattern of the five-day work week, the weekend diet exhibited considerable variation. The frequency of liver in the diet was surprising. The use of citrus fruit was a general habit. The consumption of seasonal fresh fruits, such as melons and berries, plentiful in the markets at the time of the survey, was doubtless responsible for the high intake of ascorbic acid for these groups in contrast to the usual survey findings. It was interesting that although many of the subjects felt a need to curtail food intake due to overweight, only one subject of the high-absence group took a supplement, which was iron, and three of the non-absence group took vitamin supplements.

It has been reported by workers in the Northeast that for groups of at least fifty, calculation of nutrients of a 24-hr. recall and a seven-day record gave comparable data for the group. They present this observation based on data obtained on groups of high school students, male factory workers, and pregnant women (19). This comparison was made for the two groups of this investigation, although the number in both fell short of the fifty suggested. The nutrient intakes calculated from the seven-day record and the 24-hr. recall are presented together in Table 3. There was no significant difference between the two sets of values for these two groups,

TABLE 3 Nutritive intake of non-absence and high-absence groups, calculated from 7-day records and 24-hr. recalls

NUTRIENT	RECOMMENDED DIETARY ALLOWANCE†	NON-ABSENCE GROUP		HIGH-ABSENCE GROUP		DIFFERENCE BY t-TEST‡
		7-day record	24-hr. recall	7-day record	24-hr. recall	
Calories per day	2100	1770 ± 428	1810 ± 476	1330 ± 437	1350 ± 221	4.27**
Protein (gm./day)	60	63.5 ± 14.5	65.5 ± 23.0	50.7 ± 10.9	49.5 ± 16.3	4.28**
Fat (gm./day)	—	77.9 ± 18.9	81.3 ± 29.8	60.6 ± 22.7	66.6 ± 39.3	3.46**
Calcium (gm./day)	0.8	0.59 ± 0.27	0.60 ± 0.31	0.42 ± 0.17	0.38 ± 0.22	3.27**
Iron (mg./day)	12	10.5 ± 2.6	11.9 ± 3.3	7.8 ± 1.9	7.6 ± 2.5	5.09**
Vitamin A (I.U./day)	5000	6938 ± 3892	9120 ± 3384	4585 ± 3231	3863 ± 3451	2.80**
Ascorbic acid (mg./day)	70	104 ± 48	116 ± 22	64 ± 47	67 ± 19	3.54**

**1% level of significance.

†Calculated for 45 yr., 160 cm., 61 kg.

‡Based on 7-day record.

except for vitamin A and iron in the non-absence group. The vitamin A intake based on the 24-hr. recall was higher (significant at the 1 per cent level) than that based on the seven-day record. The iron intake based on the 24-hr. recall was also higher (significant at the 5 per cent level) than that based on the seven-day record. The potency of vitamin A content, and to a degree iron, of some single food sources—in this case liver—introduces large variations. For group differences of intake of these two nutrients based on the 24-hr. recall to be valid, larger groups would be needed.

Even with these exceptions which are related and occur in the same group, both methods of collecting dietaries resulted in nutritive intake data which were remarkably similar. For these groups the use of either set of data (Table 3) in evaluating the group dietary status would lead to the same conclusions.

Infections of the upper respiratory tract and diseases of the digestive system were the two types of illness listed as causing the greatest amount of absence due to sickness. No implication is made that the level of nutritive intake of the high-absence group is responsible for the illnesses listed in Table 1. Dietary habits resulting in inferior nutritive intake were, however, concomitant with a high-absence record due to illness for our subjects.

Summary

Two groups of women factory workers served as subjects in this investigation of the dietary status of women workers with low- and high-absence records due to illness over a twelve-month period. The group of forty-one who had no absence from work due to illness had an average age of 44.4 years. Thirty-one subjects made up the high-absence group, which had an average of 23.3 days absence due to illness. This group averaged 48.4 years in age. The average daily nutrient intakes of calories, protein, fat, calcium, iron, vitamin A, and ascorbic acid were calculated for each group by means of a seven-day record and a 24-hr. recall.

The nutritive intake of the non-absence group was superior to that of the high-absence group for all seven nutrients calculated.

The seven-day record and 24-hr. recall dietaries gave closely comparable values on calculation of intake of all nutrients except vitamin A and iron for one group. Either method would have served to show the differences in nutritive intake of these two groups.

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Food Yields and Losses in Pressure Cooking

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School lunch managers and others concerned with large quantity cooking need help in the preparation of fresh and frozen broccoli, white potatoes, large dry Lima beans, and parts from older turkeys. Potatoes and dry Lima beans require a longer cooking time, and older turkeys are difficult to cook tender by roasting or braising. This study supplies information on cooking time, steamer load, and quality.

SCHOOL LUNCH managers, cooks, and others who are concerned with food preparation are constantly searching for quicker and more efficient cooking procedures. Steaming at high pressures presents a newer and faster technique in comparison with other common cooking methods. The cook who is not familiar with pressure cooking may need help in determining cooking time and steamer load for fresh, frozen, and dried vegetables and for older turkeys in order to obtain a high quality cooked product.

Research on cooking for large quantity service of several foods—fresh and frozen broccoli, dry Lima beans, and parts from older turkeys—was undertaken to determine the effect of steaming at different pressures in a drum-type portable electric high-compression steamer on cooking time, palatability, and yield.

Procedure

Fresh broccoli in bunches and frozen broccoli spears in 2-lb. institutional packages were purchased in the Washington, D.C., market. Potatoes of the Katahdin variety and large dry Lima beans also were purchased at a local market. Beltsville White turkeys, fourteen months old, were obtainable from the Animal and Poultry Husbandry Research Branch of the Department of Agriculture. The steamer used was a counter model pressure steam cooker, 18⅝ in. wide and 30 in. deep, with a capacity of three pans, 12 by 20 by 2½ in.

Preliminary investigations were made to determine the most satisfactory steaming time at 5, 10, or 15 lb. pressure, the most efficient load for the steamer of this capacity, the size of the sample to be cooked, and whether to use perforated or solid steamer pans. Data on yield were recorded for all samples at each stage of preparation.

BROCCOLI

On a basis of preliminary work, fresh broccoli spears cut 4 in. long were steamed in perforated pans, 3 lb. broccoli per pan, for 4 min. at 10 lb. pressure and for 3 min. at 15 lb. pressure. This size cooking lot was used so that the broccoli fitted into the pan in a single layer with a minimum of overlapping to avoid discoloration. The number of pans used at one time was limited to two, one on the upper rack and one on the lower rack of the steamer. When a third pan was inserted between the other two, the broccoli which touched the metal pan above turned a brownish color. Also, the three pans which filled the steaming chamber seemed to interfere with free circulation of steam and resulted in undercooking with some bleaching in the center pan and in overcooking with considerable bleaching in the top pan.

For comparison with the steamed samples, fresh broccoli was cooked by boiling. One lb. fresh trimmed

[1]The authors wish to express their appreciation to Elsie F. Dochterman and J. Eisen for statistical designs and analysis of data, and to Millard J. Horn for laboratory analysis of the lysine content of dry Lima beans and turkey parts.

broccoli was boiled for 20 min. in 3 c. water in a covered 4-qt. aluminum sauce pot with a wire basket to facilitate handling. No salt was used.

The frozen broccoli, held at 0°F. until used, was taken from the freezer, unwrapped, and placed on a wire rack at room temperature to thaw until the spears could be separated. Two-lb. lots of frozen broccoli were steamed in solid pans at 10 and 15 lb. pressure for 8 and 6 min., respectively. Solid pans were used to retain juices and to facilitate serving, although cooking time could be reduced one-third by using perforated pans. Comparable samples of broccoli were prepared by boiling the semi-frozen spears in 2½ c. water for 10 min. in a covered 4-qt. aluminum sauce pot.

POTATOES

The Katahdin potatoes used in this study were uniformly sized potatoes weighing 4 to 5 oz. each, or larger potatoes which were cut into 4- to 5-oz. pieces.

Potatoes to be peeled before cooking were weighed, before and after peeling, then washed. They were drained for 2 min. after washing and reweighed. Potatoes to be steamed in the skins were washed, dried with cheesecloth, and weighed. A single layer of potatoes was placed in each pan.

Samples of peeled potatoes were steamed at 10 lb. pressure for 25 min. and unpeeled samples for 24 min., as ascertained in preliminary investigations. At 15 lb. pressure, all samples were steamed 20 min. For comparative palatability scoring, a 4-lb. sample was boiled in 1 qt. water in a covered 4-qt. aluminum sauce pot. The potatoes were boiled until tender when pierced through the center with a wire cake tester; the time ranged from 18 to 25 min. Samples cooked in the skins were weighed before and after peeling.

DRY LIMA BEANS

The Lima beans were sorted, weighed, and washed. Lots weighing 2¼ lb. were added to 1 gal. boiling water and allowed to boil 2 min. They were removed from the heat, covered, and soaked for 1 hr. The beans were drained and the weight and volume recorded. The beans were placed in a solid stainless steel steamer pan. Two cups of the water from soaking were poured over the beans in each test, and the pan was placed in the preheated steamer. Beans were steamed 25 min. at 10 lb. pressure and 15 min. at 15 lb. pressure.

For comparative palatability tests, a 4-oz. sample of beans was soaked in 1¾ c. water by the method described above, then boiled 45 to 50 min. in the soaking water. More water was added during cooking as needed.

After cooking, all samples were drained for 2 min. before weight and volume determinations were made.

Samples from each cooking treatment were reserved for laboratory analysis of lysine content. Each sample was hydrolyzed with 20 per cent hydrochloric acid for 24 hr. and assayed for lysine (1).

TURKEY PARTS

Ready-to-cook, fresh killed tom turkeys weighing 12 to 14 lb. with neck and giblets were cut into parts according to instructions distributed by the Department of Agriculture to school cafeterias participating in the Type A school lunch program. By this cutting procedure, the back of the turkey was removed before cooking, leaving the breast rack and the legs. Turkeys were weighed before and after removal of neck and giblets. Wing tips were removed and the leg and thigh separated from the breast and back. The back was then separated from the breast rack. To have paired cooking samples, the breast rack was cut in half. The leg and thigh were also separated.

Parts to be cooked were washed, drained, and weighed before they were placed in cooking pans. Parts for steaming were placed in solid stainless steel steamer pans, 12 by 20 by 2½ in., and parts for braising were placed in similar pans, 10½ by 16½ by 2½ in., and covered with aluminum foil. For the lysine analysis of both steamed and braised meat, the leg was placed in a separate, light weight aluminum foil container in the large pan in order to keep the drippings separate.

Half of each turkey was steamed at 5 or 15 lb. pressure in a self-contained high-compression steamer. The matching half was braised in the oven at 325°F. (slow). The halves for steaming and braising were alternated with each test following a randomized block design for six scoring sessions. Thermocouples were placed in the thickest portion of the breast and thigh, and one thermocouple was suspended in the steamer. A maximum recording thermometer was placed in the pan as a check on the internal temperature and pressure of the steamer.

Steaming time was based on a predetermined number of minutes per pound. Preliminary investigations indicated that 10 min. per pound at 15 lb. pressure and 13 min. per pound at 5 lb. pressure would yield satisfactory results. Therefore, the steaming time was determined by multiplying the number of minutes per pound, at the specified pressure, by the total weight of turkey parts in the pan. Preliminary studies indicated that roasting uncovered at 325°F. was unsatisfactory for turkeys of this age. Subsequent samples were covered with aluminum foil and cooked by braising for 2¾ to 3¼ hr., for comparison with pressure-steamed samples.

In each cooking test, all parts in the pan were cooked the same length of time. It was impractical to remove parts from the steamer as they became tender or to keep a time record of individual pieces;

therefore, the end point of cooking was adjusted to cook the least tender pieces.

After cooking, all turkey parts were drained and weighed. Meat, bone, and skin were separated and weights recorded. Weight and volume of drippings were also recorded.

Yield data on the legs reserved for lysine analysis were noted. The meat and drippings were placed in a wide-mouth freezer jar and stored at —40°F. until time of analysis. Lysine analyses were made on turkey braised for 3 hr. and on turkey steamed at 5 and 15 lb. pressure. Each sample was hydrolyzed with 20 per cent hydrochloric acid for 24 hr. and assayed for lysine using a microbiologic procedure (1). A preliminary experiment was made on the availability of lysine from the three samples of cooked turkey.

PALATABILITY EVALUATION

A randomized design was used in palatability scoring of the cooked vegetables by a trained panel of five home economists. Each vegetable was presented in pairs of one boiled and one steamed sample. Samples were rated by numerical values on a five-point scale with descriptive adjectives to express differences in quality.

Light and dark meat from steamed and braised samples of turkey were evaluated by a trained panel of six members. Paired samples from the right and left sides cooked by steaming and braising were rated on moistness of meat, tenderness of meat, turkey flavor, and acceptability.

Results

BROCCOLI

The yield of raw prepared *fresh* broccoli from eight market lots varied from 55 to 73 per cent, average 59 per cent, of the weight as purchased with five of the lots in the range of 55 to 60 per cent. Waste included woody stems, wilted and broken leaves, bruised stalks, and peelings. Based on the A.P. weight, the average yield of fresh broccoli cooked by boiling was 57 per cent; steamed at 10 lb. pressure, 53 per cent; and steamed at 15 lb. pressure, 54 per cent (Table 1). Based on raw prepared weight, cooked yield of fresh broccoli ranged from 90 to 98 per cent. The average per cent yield of steamed *frozen* broccoli was 92 per cent of the A.P. weight.

Mean palatability scores for broccoli are shown in Table 2. There were no significant differences in color, flavor, texture, or acceptability for fresh broccoli steamed at 10 lb. pressure and samples cooked by boiling. The boiled samples had better texture than the samples steamed at 15 lb. pressure but had a lower rating on color and general acceptability.

There were no significant differences in color, flavor, texture, or general acceptability of frozen broccoli boiled or steamed at 10 or 15 lb. pressure for the cooking times used. In general, the fresh broccoli after steaming had a slightly dull or dark green color, a moderately desirable flavor, a slightly too-tender texture, and rated only fair in general acceptability. Steamed frozen broccoli had better color, flavor, texture, and acceptability scores than fresh broccoli.

TABLE 1 **Yield of vegetables cooked in a portable high-compression steamer and boiled on top of the range**

CONDITION OF VEGETABLE BEFORE COOKING	COOKING METHOD	NUMBER OF SAMPLES	A.P. WEIGHT	YIELD OF COOKED EDIBLE FOOD BASED ON WEIGHT	
				Ready-to-cook	As purchased
Broccoli					
			lb.	%	%
Fresh	Steamed at 10 lb. pressure	4	20.4	90	53
	Steamed at 15 lb. pressure	10	46.6	92	54
	Boiled	7	17.2	98	57
Frozen	Steamed at 10 lb. pressure	12	26.6	92	92
	Steamed at 15 lb. pressure	15	38.0	92	92
Potatoes					
Peeled	Steamed at 10 lb. pressure	6	43.3	101	85
	Steamed at 15 lb. pressure	10	79.3	98	84
	Boiled	7	28.0	102	88
Unpeeled	Steamed at 10 lb. pressure	9	82.6	88	88
	Steamed at 15 lb. pressure	6	46.4	88	88
Lima Beans					
Dry	Steamed at 10 lb. pressure	2	4.5	231	250
	Steamed at 15 lb. pressure	2	4.5	228	248
	Boiled	4	1.0	228	360

POTATOES

Yield of steamed peeled potatoes was slightly lower than that of boiled potatoes, probably because

TABLE 2 Palatability scores for fresh and frozen broccoli

COOKING METHOD	MEAN PANEL SCORES†			
	Color	Flavor	Texture	Acceptability
Fresh Broccoli‡				
Steamed at 10 lb. pressure	3.6	2.7	3.3	2.8
Boiled	2.8	3.1	3.9	2.8
Steamed at 15 lb. pressure	3.9	2.9	3.6*	3.0
Boiled	2.5*	2.8	4.4	2.6*
Frozen Broccoli‡‡				
Steamed at 10 lb. pressure	3.9	3.7	4.4	3.4
Boiled	3.5	3.3	3.7	3.2
Steamed at 15 lb. pressure	4.4	3.8	4.4	3.7
Boiled	3.9	3.4	4.3	3.5

* Significantly lower at 5% level than other mean of pair.

† Five was the highest possible score; one was the lowest.

‡ For fresh broccoli, each mean score for samples steamed at 10 lb. pressure consisted of 10 scores (5 judges, 2 scores each); each mean score for samples steamed at 15 lb. pressure consisted of 20 scores (5 judges, 4 scores each).

‡‡ For frozen broccoli, each mean score consisted of 10 scores (5 judges, 2 scores each).

TABLE 3 Palatability scores for steamed and boiled potatoes

FORM OF PREPARATION AND COOKING	MEAN PANEL SCORES†			
	Color (interior)	Flavor	Texture	Acceptability
Boiling vs. Steaming at 10 lb. Pressure				
Peeled				
Steamed	2.3	2.9	2.7	2.6
Boiled	2.0	3.2	3.6	2.5
Average	2.2	3.1	3.2	2.6
Unpeeled				
Steamed	2.5	3.7	2.8	3.0
Boiled	2.5	3.4	3.2	3.1
Average	2.5	3.5	3.0	3.0*
Boiling vs. Steaming at 15 lb. Pressure				
Peeled				
Steamed	2.0	3.4	2.6	2.6
Boiled	2.9	3.6	2.9	3.1
Average	2.4	3.5	2.8	2.8
Unpeeled				
Steamed	2.8	3.5	3.1	3.0
Boiled	2.9	3.2	3.4	2.9
Average	2.8*	3.4	3.2*	3.0

* Significantly different at 5% level from average for peeled potatoes.

† Each mean consisted of 10 scores (5 judges, 2 scores each). Five was the highest possible score; one was the lowest.

of the absorption of water in the latter which had higher cooked weights than raw prepared weights. The yield of cooked edible portion was approximately the same for those steamed at 10 and 15 lb. pressure, and slightly higher for unpeeled than for peeled potatoes (Table 1).

In texture, boiled potatoes were rated significantly higher than potatoes steamed at 10 or 15 lb. pressure (Table 3). At the higher steam pressure, the potatoes rated lower than boiled potatoes in color of the interior. In other quality factors of flavor and general acceptability, there was no real difference between steamed and boiled potatoes.

Unpeeled potatoes rated higher than peeled potatoes in several quality factors; significant differences were noted for interior color, texture, and general acceptability. Differences in flavor did not reach statistical significance.

DRY LIMA BEANS

The yield of Lima beans steamed at 10 and 15 lb. pressure ranged from 248 to 250 per cent by weight, which showed no difference attributable to pressure (Table 1). Boiled samples averaged a much greater yield (360 per cent) owing to greater water absorption.

Palatability scores indicated that the boiled samples were more satisfactory in appearance than the pressure-steamed samples (Table 4). The cotyledon of Lima beans was rated slightly less tender in boiled samples than in the steamed samples. Although scores for flavor and acceptability were higher for boiled than for steamed samples, the differences were not significant.

The different methods of cooking did not affect the lysine content of the Lima beans. Lysine values for the cooked beans differed slightly from the value for a raw sample analyzed previously. Lysine values per gram of nitrogen were as follows: sample boiled 45 to 50 min., 0.446 gm.; sample steamed 25 min. at 10 lb. pressure, 0.446 gm.; sample steamed 15 min. at 15 lb. pressure, 0.449 gm.; and raw sample, 0.474 gm.

TURKEY PARTS

Average yield of edible turkey meat was 43 per cent for samples steamed at 5 lb. pressure, 44 per cent for those steamed at 15 lb. pressure, and 45 per cent for those braised in a 325°F. oven (Table 5).

Mean palatability scores for steamed and braised turkey parts are presented in Table 6. There were no significant differences in tenderness, flavor, or general acceptability of turkeys due to method of

TABLE 4 Palatability scores for dry Lima beans cooked by steaming and boiling

COOKING METHOD	MEAN PANEL SCORES*			
	Appearance	Tenderness of cotyledon	Flavor	Acceptability
Steamed at 10 lb. pressure	3.6	4.4	3.8	3.2
Boiled	4.3	5.9	4.0	3.7
Steamed at 15 lb. pressure	3.7	4.7	3.9	3.4
Boiled	4.9	6.4	4.3	3.8

* Each mean score consisted of 10 scores (5 judges, 2 scores each). Five was the highest possible score for appearance, flavor, and acceptability; a score of 5 indicated optimum tenderness, above 5 too firm and below 5 too soft.

TABLE 5 Yield of cooked edible meat from steamed and braised turkey parts, expressed as a percentage of the ready-to-cook weight*

COOKING METHOD	COOKING TIME	READY TO-COOK WEIGHT	WEIGHT LOSS DURING COOKING	COOKED EDIBLE MEAT AS PER CENT OF READY-TO-COOK WEIGHT
		lb.	*%*	*%*
Steamed at 5 lb. pressure	1 hr. 5 min.	15.07	30	43
Braised at 325°F.	2 hr. 40 min.	14.67	29	45
Steamed at 15 lb. pressure	52 min.	14.91	32	44
Braised at 325°F.	3 hr. 5 min.	15.26	32	45

* Three samples for each test.

cooking. Light meat was generally more tender than dark meat, but mean scores for flavor and general acceptability of light and dark meat were not significantly different.

The mean score for moistness of turkey meat steamed at 5 lb. pressure was significantly lower than that for braised turkey meat, due to difference between the means of steamed light meat and braised light meat. Light meat steamed at 15 lb. pressure received about the same moistness scores as braised light meat. Moistness scores for steamed and braised dark meat also were very similar.

The lysine content per gram of nitrogen in turkey meat after cooking by braising was 0.570 gm.; after steaming at 5 lb. pressure, 0.580 gm.; and after steaming at 15 lb. pressure, 0.580 gm. The lysine content of raw turkey as reported in 1954 was 0.603 gm. (1). In a preliminary experiment on availability of lysine to growth of microorganisms, no difference was detected among the three samples cooked by different methods.

TABLE 6 Palatability scores of steamed and braised older turkeys

COOKING METHOD	MEAN PANEL SCORES*			
	Moistness	Tenderness	Flavor	General acceptability
Light Meat (Breast)				
Steamed at 5 lb. pressure	2.5	3.5	3.2	3.2
Braised at 325°F.	3.7	4.0	4.1	3.9
Steamed at 15 lb. pressure	2.7	3.8	3.5	3.2
Braised at 325°F.	2.9	3.4	3.5	3.2
Dark Meat (Thigh)				
Steamed at 5 lb. pressure	3.3	3.4	4.0	3.5
Braised at 325°F.	3.3	3.2	3.8	3.3
Steamed at 15 lb. pressure	3.2	3.1	3.7	3.2
Braised at 325°F.	3.1	3.2	3.8	3.1

* Each mean score consisted of 12 scores (6 judges, 2 scores each). Five was the highest possible score; one was the lowest.

Summary

Fresh and frozen broccoli, potatoes, and dry Lima beans were steamed at 10 and 15 lb. pressure in a drum-type, portable, high-compression steamer and boiled in a covered aluminum sauce pot on top of the range, to determine the relative cooking times, quality of product, and usefulness of the steamer in the school lunch kitchen. Parts of older turkeys were steamed at 5 and 15 lb. pressure and braised in a 325°F. oven. Yield data were recorded at each stage in preparation.

The cooking time for potatoes and frozen broccoli was not materially shortened by cooking at 10 and 15 lb. steam pressure; the cooking time for fresh broccoli and dry Lima beans was much shorter in the steamer than in a sauce pot on top of the range. Steaming turkey parts at 5 or 15 lb. pressure required only about one-fifth as much time as braising in a 325°F. oven.

The quality of the product varied with the type of food and the steam pressure used. Method of cooking appeared to have little effect on lysine content of dry Lima beans or turkey parts.

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Yield from Institutional Packs of Frozen Produce[1]

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Should frozen vegetables and fruits purchased in institutional-sized packages be thawed? If so, how long? What is the best cooking method? How large should a cooking lot be? What cooking yields are to be expected? Research work to learn the answers to these and other questions concerning the cooking of frozen food to insure maximum yield and to aid in calculating quantities to purchase for a specified number of servings is reported in this paper.

THE USE of frozen foods for institutional feeding operations has grown rapidly in the last few years. A recent survey made by the U. S. Department of Agriculture showed that 31 per cent of the vegetables purchased by restaurants were frozen (1). Ease of preparation and ready availability have made frozen foods popular as a means of reducing labor costs in the quantity feeding industry as well as in institutional and school lunch operations.

The study reported here was designed primarily to answer many questions which evolved in connection with the national school lunch program regarding the use of frozen vegetables and fruits purchased in institutional-sized packages.

Data on yield of thawed and prepared food ready for table use have already been used to calculate the number of servings per pound of food as purchased for inclusion in the *Food Buying Guide for Type A School Lunches* (2). Thawing and cooking data were used as a basis for the publication entitled *Recipes —Type A School Lunches* (3). These data also have been used in a compilation from the literature and other sources (4).

Procedures

The number and variety of vegetables and fruits was dependent on supplies of distributors in the Washington, D.C., area. To have as wide representation as possible in the sample, brands packed in different parts of the country were selected whenever available.

VEGETABLES

The following frozen vegetables were purchased: asparagus cuts and tips, cut green beans, baby Lima beans, Fordhook Lima beans, blackeye peas, chopped broccoli, broccoli spears, cauliflower, collard greens, cut corn, kale, okra, green peas, peas and carrots, Hubbard squash, succotash, turnip greens, and mixed vegetables. Five packages each of one to three available brands were obtained to allow for pretesting and replication of the experiments.

The vegetables were in 2-, 2½-, and 3-lb. packages. Some were loose-pack; others were packed with vegetable juices and formed a solid block. All were packaged in waxed cardboard boxes and wrapped in waxed paper. The packages were stored at 0°F. until used.

Loose-pack vegetables could be cooked without thawing. The solid packs required thawing to the stage at which vegetable pieces could be separated easily. For thawing, the waxed paper wrapping was removed and a hole punched with an ice pick to the center of the package; a thermocouple attached to a recording potentiometer was inserted in the hole and held in place with Cellophane tape. The packages

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were placed on wire racks with the thermocouples pointing upward and left at room temperature until the potentiometer registered 26° to 28°F. or, in some instances, 29° or 30°F. At 28°F., the vegetables in most cases were still in a semi-solid state but were thawed enough to separate.

Two methods were used for cooking the vegetables: boiling and steaming. Boiling was done in a covered institutional 4-qt. pot on a heavy-duty electric range; a few of the vegetables were cooked in a steam-jacketed kettle. The vegetable was added to boiling water and cooking time recorded from the time the water returned to a boil until the vegetable was tender. Pre-boil time was recorded but was not counted as part of the total cooking time. Steaming was done in a two-compartment steamer at 5 lb. pressure using solid, stainless steel steamer pans. Cooking time was recorded from the time the steamer reached 5 lb. pressure until the vegetable was cooked for a predetermined number of minutes. In general, it took only a few minutes for the pressure to come up to 5 lb. Vegetables were cooked in one- and two-package lots to see if there was any appreciable difference in cooking time, appearance, and palatability.

FRUITS

The following frozen fruits were used: sliced apples, apricot halves, blackberries, blueberries, sliced peaches, rhubarb, and strawberries. Five packages each of one to three brands of the different fruits were purchased to allow for pretesting and replication of the experiments.

The fruits were packed in 2½-, 6-, 8½-, 9-, 10-, 20-, 22-, 22½-, and 30-lb. metal cans. Blueberries of one brand were in 2½-lb. pasteboard cartons. Fruits were stored at 0°F. until used.

Before tests were made, cans of frozen fruit were taken from the freezer, tops removed, and two holes drilled with a ⅛-in. drill to one-half the depth of the can, one hole in the center of the can and the other half way between the center and outside. Numbered thermocouples were inserted and the holes filled with water so that there would be no air space around the thermocouples. The cans were then returned to 0°F. storage until used.

At the time of the test, the can of fruit was removed from the freezer and thermocouples attached to a recording potentiometer. Thawing tests were made in the refrigerator and at room temperature away from any source of heat. In both instances, the cans were placed on wire racks to permit free circulation of air. The fruit was allowed to thaw to a temperature of 32°F.

Fruits were cooked by two methods, heated on top of the range and in a steam-jacketed kettle. In both instances, the drained liquid was first heated to boiling and sugar added, then reheated and boiled 1 min. Fruit and liquid were then combined, heated to boiling, and boiled 1 min., the method commonly used for frozen fruits as prepared for counter service. No samples of strawberries were heated.

YIELD DETERMINATIONS

Determinations of total volume and weight were made for the vegetables and fruits before and after preparation for serving. Data were obtained also on volume and weight of solids and of liquid for thawed fruits before preparation and for both vegetables and fruits after preparation. For determination of solids and liquid, the products were drained for 2 min., large quantities in an institutional colander and small quantities in a sieve of appropriate size. As a basis for determining yields in terms of numbers of servings of specified size, 1-qt. and 1-cup measures of drained vegetables and of fruits "as served" were weighed. The term "as served" refers to fruit served with a solid spoon. All data were recorded on worksheets.

Results

VEGETABLES

Thawing vegetables in the refrigerator took approximately 20 hr., and in most institutional situations would not be practical. At room temperature, solid-pack vegetables required 3½ to 7 hr. to thaw to 26° or 28°F., the stage where they could be broken apart easily. In general, loose-pack vegetables in 2-, 2½-, and 3-lb. packages required 3 to 5 hr. to thaw to the same degree. Some loose-pack vegetables, such as Lima beans and peas which were frozen in individual pieces, required no thawing before cooking.

There were slight or no differences in the boiling time of one- or two-package lots of vegetables. The pre-boil time, however, varied greatly depending on the amount of water needed for cooking a particular vegetable.

All vegetables steamed satisfactorily in one-package lots, 2 to 3 lb. in size. When two-package lots were used in one solid steamer pan, the top layer of vegetables was bleached and the bottom layer was underdone. This occurred to the greatest extent with the green vegetables, such as broccoli, asparagus, Lima beans, and green beans. In several tests, the steamer pans were covered with aluminum foil to avoid bleaching the top layer of the vegetable. Covering eliminated bleaching but lengthened the cooking time. With broccoli, only one layer could be placed in a pan because the broccoli darkened wherever the foil touched it.

The range in yield of cooked vegetables was from 73 to 120 per cent of the thawed weight (Table 1). Immature seed-type vegetables, including Lima beans, blackeye peas, and succotash, absorbed water and gained from 4 to 20 per cent by weight during

TABLE 1 Yield of frozen vegetables after cooking

VEGETABLE AND METHOD OF PREPARATION	FOOD AS PURCHASED		YIELD OF DRAINED, COOKED FOOD BY WEIGHT	WEIGHT OF 1 QT. DRAINED	WEIGHT OF ½ CUP DRAINED	AMOUNT TO BUY TO SERVE 100 ½-CUP PORTIONS
	Cooking lots	Total weight				
	number	*lb.*	*%*	*lb.*	*lb.*	*lb.*
Asparagus cuts and tips						
Boiled 7 to 9 min.	4	14.8	81	1.62	0.20	25
Steamed 5 min.	3	10.0	79	1.57	0.20	25
Beans, baby Lima						
Boiled 12 to 13 min. for 1 pkg., 15 min. for 2 pkg.	4	15.2	109	1.61	0.19	17
Steamed 10 to 12 min. for 1 pkg., 12 to 15 min. for 2 pkg.	5	17.6	108	1.62	0.19	18
Beans, Fordhook Lima						
Boiled 6 to 11 min.	2	5.6	99	1.51	0.18	18
Steamed 12 min. for 1 pkg., 20 to 31 min. for 2 pkg.	5	22.1	105	1.60	0.19	18
Beans, cut green						
Boiled 13 to 29 min.	5	17.5	92	1.43	0.17	18
Steamed 14 to 15 min.	6	20.1	92	1.56	0.18	20
Blackeye peas						
Boiled 28 to 30 min.	2	12.4	120	1.67	0.19	16
Steamed 15 min. for 1 pkg., 25 min. for 2 pkg.	2	7.4	107	1.56	0.18	17
Broccoli, chopped						
Boiled 8 to 20 min.	2	5.0	96	1.54	0.21	22
Steamed 17 min.	3	7.5	98	1.61	0.20	20
Broccoli, spears						
Steamed 5 to 10 min. (25 to 30 min. when covered with foil)	6	20.0	89	1.48	0.21	24
Cauliflower						
Boiled 12 to 13 min.	2	11.9	92	1.48	0.20	22
Steamed 4 to 5 min.	3	7.9	90	1.35	0.20	22
Collard greens						
Boiled 30 to 40 min.	3	12.4	89	1.68	0.18	20
Steamed 4 to 5 min.	4	12.4	90	1.54	0.17	19
Corn, cut						
Boiled 5 to 10 min.	6	22.3	98	1.66	0.20	20
Steamed 2 to 19 min.	4	15.1	93	1.66	0.20	22
Kale						
Boiled 20 to 30 min.	5	20.0	73	1.50	0.22	30
Steamed 20 to 30 min.	4	12.5	77	1.74	0.20	26
Okra, whole						
Boiled 5 min.	1	4.8	103	1.91	0.22	21
Steamed 3 to 5 min.	2	7.3	99	1.83	0.24	24
Okra, cut						
Boiled 5 min.	2	7.9	83	1.90	0.22	27
Steamed 5 min.	1	5.2	82	1.97	0.24	29
Peas						
Boiled 6 to 9 min.	4	15.1	95	1.54	0.18	19
Steamed 5 min.	5	17.5	96	1.51	0.18	19
Peas and carrots						
Boiled 8 to 10 min.	3	12.3	97	1.62	0.19	20
Steamed 5 min.	3	12.4	99	1.58	0.18	18
Squash, Hubbard						
Steamed (covered) 25 min.	1	5.0	99	2.11	0.28	28
Double boiler 37 min.	2	7.5	97	2.14	0.26	27
Succotash						
Boiled 6 to 15 min.	4	14.9	107	1.83	0.22	21
Steamed 12 to 17 min.	5	17.4	104	1.71	0.20	19
Turnip greens						
Boiled 25 min.	2	9.7	79	1.75	0.22	28
Steamed 18 min.	1	2.4	80	1.95	0.24	30
Vegetables, mixed						
Boiled 20 to 25 min.	5	22.4	92	1.75	0.20	22
Steamed 14 to 16 min.	4	15.1	96	1.68	0.20	21

TABLE 2 Yield of frozen fruits after thawing and preparation

FRUIT AND METHOD OF PREPARATION	FOOD AS PURCHASED		YIELD OF PREPARED FRUIT BY WEIGHT			WEIGHT OF 1 QT. AS SERVED	WEIGHT OF ½ CUP AS SERVED	AMOUNT TO BUY TO SERVE 100 ½-CUP PORTIONS
	Sample lots	Total weight	Total*	Solids	Liquid			
	number	*lb.*	*%*	*%*	*%*	*lb.*	*lb.*	*lb.*
Apple slices—5 parts fruit to 1 part sugar								
Unheated	3	51.0	100	68	32	.....	.....	....
Boiled 2 min., 1 lb. 6 oz. sugar added	1	10.1	110	59	48	2.45	0.29	26
Steam-jacketed kettle 2 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	2	40.9	103	58	43	2.46	0.31	29
Apricot halves—5 parts fruit to 1 part sugar								
Unheated	2	60.3	100	64	34	.....	.....	....
Steam-jacketed kettle 15 seconds	1	30.2	93	58	34	2.39	0.29	31
Blackberries—sugar sirup								
Unheated	7	69.6	100	43	57	.....	.....	....
Boiled 1 min., 1 lb. 6 oz. sugar added per 10 lb.	4	39.7	107	30	73	2.31	0.28	26
Steam-jacketed kettle 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	29.9	97	27	68	2.29	0.28	29
Blueberries—no sugar added								
Unheated	4	71.7	100	74	26	.....	.....	....
Boiled 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	28.4	112	59	50	2.21	0.27	24
Steam-jacketed kettle 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	43.2	104	53	50	2.24	0.28	27
Cherries—sugar sirup								
Unheated	7	121.5	100	57	42	.....	.....	....
Boiled 1 min., 8 oz. sugar added per 10 lb. fruit and juice	2	30.2	100	34	65	2.46	0.30	30
Steam-jacketed kettle 1 min., 8 oz. sugar added per 10 lb. fruit and juice	2	30.9	96	33	63	2.42	0.30	31
5 parts fruit to 1 part sugar								
Boiled 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	30.2	107	43	62	2.42	0.30	28
Steam-jacketed kettle 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	30.2	93	42	50	2.53	0.30	32
Peach halves—sugar added								
Unheated	6	52.2	100	54	45	.....	.....	....
Boiled 1 min.	2	16.9	97	52	42	2.27	0.28	29
Steam-jacketed kettle 1 min.	1	8.5	95	48	45	2.25	0.28	29
4 parts fruit to 1 part sugar								
Boiled 1 min.	1	8.8	96	47	47	2.19	0.28	29
Steam-jacketed kettle 1 min.	2	18.0	93	48	44	2.24	0.28	30
Peaches sliced—sugar sirup								
Unheated	7	151.8	100	55	45	.....	.....	....
Boiled 1 min.	2	20.4	94	39	54	2.30	0.29	31
Steam-jacketed kettle 1 min.	1	10.1	94	40	52	2.33	0.28	30
4 parts fruit to 1 part sugar								
Boiled 1 to 2 min.		45.6	97	49	45	2.32	0.28	29
Steam-jacketed kettle 1 min.	3	75.7	95	52	41	2.30	0.28	29
Rhubarb—sugar sirup								
Unheated	5	69.2	100	61	37	.....	.....	....
Boiled 2 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	2	29.8	111	50	54	2.29	0.28	25
Steam-jacketed kettle 1 min., 1 lb. 6 oz. sugar added per 10 lb. fruit and juice	3	39.3	104	60	41	2.35	0.29	28
Strawberries								
Unheated	8	72.0	100	50	47	.....	.....	....

*May not equal total of solids and liquid due to handling losses.

cooking. Green, leafy vegetables consistently had the lowest yields, ranging from 73 to 90 per cent. The cooked yield was 79 to 99 per cent for the remaining vegetables, mostly stem type—asparagus, green beans, broccoli, cauliflower, corn, okra, peas, peas and carrots, Hubbard squash, and mixed vegetables. The cooking method, steaming or boiling, made no consistent difference in the yield by weight of cooked vegetable.

In calculating the amount to buy to serve 100 ½-cup portions of cooked vegetable, the per cent yield based on weight and the average weight of a ½-cup portion of drained vegetable were considered. With frozen vegetables that tend to hold their original shape, such as blackeye peas, corn, green beans, Lima beans, and peas, 16 to 22 lb. as purchased were required from 16 to 22 hr. to reach an internal servings of vegetables that soften and pack more closely after they are cooked, such as kale, turnip greens, asparagus cuts and tips, and okra, 24 to 30 lbs. as purchased were needed.

FRUITS

The time required for thawing fruits in the refrigerator at 40°F. was impractically long, ranging from 36 to 74 hr. for 8½- to 10-lb. cans. Thawed at room temperature, 8½- to 10-lb. cans of frozen fruit required from 16 to 22 hr. to reach an internal temperature of 32°F. and 20- to 30-lb. cans required from 25 to 30 hr.

Yield of unheated solids from frozen fruits (Table 2) ranged from 43 to 74 per cent of the thawed weight. Of the varieties and brands tested, blueberries packed without added sugar had the highest yield of 74 per cent, and blackberries packed in a sugar sirup had the lowest yield of 43 per cent. Other fruits had from 50 to 68 per cent solids by weight after thawing. When packed in dry sugar, sliced apples had a yield of 68 per cent solids; apricot halves, 64 per cent; cherries, 57 per cent; peach halves, 54 per cent; sliced peaches, 55 per cent; rhubarb, 61 per cent; and strawberries, 50 per cent.

In some instances, because sugar was added in preparing fruits for serving, the total heated yield was more than 100 per cent of the thawed weight.

The yield of solids was always less in the heated than in the unheated fruit, sometimes by as much as 21 to 24 per cent. Blackberries had the lowest yield, 27 per cent heated compared with 43 per cent unheated, and blueberries the highest yield, 59 per cent heated compared with 74 per cent unheated. The yield of drained liquid was in general lower (from 2 to 13 per cent) when fruits were heated in a steam-jacketed kettle than when they were heated on top of the range, owing to greater evaporation in the steam kettle.

In terms of the amount to buy to serve 100 ½-cup portions, the frozen fruits investigated required from 24 to 31 lb. of the fruits as purchased. Method of heating fruits influenced results. For example, when apple slices were heated on the top of the range, 26 lb. of the frozen fruit were needed for 100 servings, whereas 29 lb. were needed when heated in the steam-jacketed kettle.

Summary

Institutional-size packages of frozen fruits and vegetables were used to investigate the required thawing time, cooking time, and yield. Yield data were to be used as a basis for calculating quantities to purchase to serve 100.

The fruits and vegetables were thawed at room temperature and in the refrigerator.

The vegetables were cooked until tender by boiling or steaming. The fruits were heated on top of the range or in a steam-jacketed kettle for 1 min. in preheated liquid. This prevented any change in color of fruits inclined to darken in the air and most nearly approximated the preparation for counter service. Sugar was added in proportion to the weight of the cooking lot to improve palatability.

Yield data, recorded at each stage of preparation, consisted of total yield, drained solids, drained liquid in the fruits, and the weight of 1-qt. and ½-cup measures "as served."

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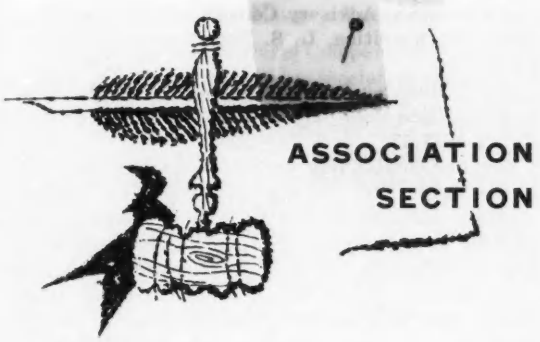
U. S. Beverage Consumption

Coffee is indeed our national drink, according to the 1955 survey of household food consumption conducted by the U.S.D.A. A little over sixteen 6-oz. cups of coffee was estimated to be the per-person average per week—considerably higher than the average for tea or soft drinks—5 cups tea, and a little over 2 cups soft drinks. About half of the families reported using soft drinks at home, but only a fourth purchased tea.

Fresh fluid milk was used in 94 per cent of the households compared with 91 per cent for coffee, but some was used for cooking or on cereals. Thus, it appears that the quantity of milk we drink is less than that of coffee, even though total use of milk is higher.

ELIZABETH NEIGE TODHUNTER, Ph.D., President of The American Dietetic Association



Elizabeth Neige Todhunter
President, The American Dietetic Association

THE AMERICAN Dietetic Association is indeed fortunate to have as its new president E. Neige Todhunter who brings to the office a wealth of experience with the organization as well as in the professional areas represented in the Association. Those who have been privileged to know Dr. Todhunter appreciate her for her fine philosophy of nutrition and dietetics. She has brought prestige and stature to our profession during her years of active participation in nutrition research, in programs in the application of scientific knowledge to nutrition education, and in administrative work in home economics. It is a privilege to present her as the new president to the members.

Elizabeth Neige Todhunter was born in Christchurch, New Zealand, the third of four children born to Louisa Elizabeth Bone and Richard Waterhouse Todhunter. Her name has an interesting story behind it. Dr. Todhunter says that snow is comparatively rare in Christchurch, which lies on the Plains of Canterbury (the very names show the influence of the English settlers), but when she was born there was a snow storm, hence the name Neige was given to the only redhead in the family. Dr. Todhunter's parents were from Lancashire, England; they had each gone to New Zealand in their youth, where they met and married. The name "Todhunter" is North Country English for "fox hunter."

Her father was a reader and lover of books, and Dr. Todhunter read books from the earliest time she can remember. Those who have had the opportunity to discuss current-day problems with her appreciate her great store of knowledge and ideas which this early and constant association with books has produced.

As a child she lived in the country close to the edge of the city, and so, in the New Zealand custom, she rode her bicycle two miles to the end of the tram (streetcar) line and then to the high school in the city. She says that she wonders how anyone can grow up anywhere but in the country, roaming the countryside, knowing the trees, the birds, and always the inspiration of the snow-capped mountain tops of the "Southern Alps" in the distance.

She took home economics in high school where her teacher encouraged her to go on to the University. In New Zealand there are four university colleges, one in each of the large cities, all of which make up the University of New Zealand. All students in these colleges take the same examinations and receive a degree from the University of New Zealand. Dr. Todhunter attended the University of Otago, one of these four colleges, which is located at Dunedin (meaning Edinburgh of the South). During the time when she was a college student, the course there in home economics, called "Home Science," required four years with the major work taken in science and with no electives. As an undergraduate, she was therefore well grounded in the basic sciences.

Lillian Storms Coover went to New Zealand to start nutrition teaching at the University of Otago where Neige Todhunter was her laboratory assistant and had the care of the rat laboratory. Dr. Coover's teaching and her work in nutrition inspired this young student to want to come to the United States and study under Dr. Henry C. Sherman. After receiving her bachelor's degree, she took the two additional years required at the University of Otago for her master's degree, earning her expenses as a laboratory assistant and as a food demonstrator for a gas company. She also taught home economics in a New Zealand high school.

When she came to the United States, she spent six months at Iowa State College learning about home economics in this country and about the American way of life. It was the author's great privilege to know Neige during her stay in Ames and to have many long walks and picnics in the surrounding country with her, when we also learned much about her native country.

After taking her Ph. D. degree under Dr. Sherman at Columbia University, she became Associate Professor of Nutrition in the School of Home Economics at Washington State College. There she did nutrition research in the Experiment Station and taught graduate courses in nutrition.

In 1941, she went to the University of Alabama where she established the Research Laboratory in Human Nutrition and became its Director. Later, she was made Head of the Department of Foods and Nutrition, and in 1953, she became Dean of the School of Home Economics.

During the time Dr. Todhunter has worked in Alabama she has made a great contribution to the school lunch program of the South as well as to the total program in the United States. For five years she wrote a bulletin, *School Lunch and Nutrition*

News, until the different states developed their own news publications in this area.

Dr. Todhunter has an impressive list of publications to her credit: 25 research papers, 21 scientific papers, one book, 5 bulletins, and 23 general papers. Members of the profession of dietetics who read her notes on the history of nutrition each month in this JOURNAL will be interested that she has now written 82 articles on this subject. In addition to the editing of *School Lunch and Nutrition News*, she edited the COURIER of The American Dietetic Association for one year.

She is a member of: American Home Economics Association, The American Dietetic Association, American Chemical Society, American Association for Advancement of Science (Fellow of), American Institute of Nutrition, American Association of University Women, School Food Service Association, Sigma Xi, Sigma Delta Epsilon, Omicron Nu, Delta Kappa Gamma, Mortar Board, and Phi Upsilon Omicron.

In The American Dietetic Association she has held the following offices: Chairman, JOURNAL Board; Chairman, Committee on History of Nutrition; Member of the Nominating Committee; Speaker, House of Delegates; and President-Elect.

In the American Home Economics Association she has served as: Chairman, Advisory Committee of Bureau of Human Nutrition and Home Economics; Member of the Nominating Committee; Chairman, Research Committee, Foods and Nutrition; and Chairman, Colleges and Universities Department.

In addition she has been: Councilor of American Institute of Nutrition; Chairman, Advisory Committee, Dietetic Division, Veterans Administration; and Chairman, Advisory Committee on Research in Food and Nutrition, U. S. Department of Agriculture.

Dr. Todhunter has been appointed to the Food and Nutrition Board of the National Research Council for 1957-58.

For her outstanding contributions, she was made an honorary life member of the New Zealand Dietetic Association in 1956 and an honorary life member of Alabama Congress of Parents and Teachers in 1957. She also has been awarded honorary state membership in Future Homemakers of America in 1956, and in 1950, *The Progressive Farmer* cited her as the "Woman of the Year" for Alabama.

She belongs to the Tuscaloosa Pilot Club International of which she is a past-president. She is a member of the Episcopal church.

She has traveled extensively in England, the Netherlands, France, the Caribbean, and Alaska. In 1956, she attended the International Congress of Dietetics in Rome, Italy, where she presented a paper.

Her hobbies are reading, book collecting, and writing on the subject of the history of nutrition. She says that her love of a garden is spent on one the size of a pocket handkerchief; however, her friends can testify that it is a lovely one. Those who have enjoyed visits in her interesting apartment have come away enriched by fellowship with Neige and with her world of literature which she has made so much a part of herself. —*Miriam E. Lowenberg, Ph. D., Head, Foods and Nutrition Department, College of Home Economics, The Pennsylvania State University, University Park.*

Mary Swartz Rose Fellowship

IN 1948, the Nutrition Foundation, Inc., made a grant to The American Dietetic Association, establishing the Mary Swartz Rose Fellowship which annually provides $1000 for graduate study and research in nutrition or allied fields. The Fellowship honors a pioneer in the field whose accomplishments personalize the spirit of the award.

Provisions of qualification for the Mary Swartz Rose Fellowship follow:

Applicants must: (a) be members of The American Dietetic Association; (b) have ranked in the upper quartile of these respective graduating classes and have majored as undergraduates in a field closely related to that in which the Fellowship is sought or have gained equivalent training later; and (c) show promise of making a valuable contribution to the profession.

The recipient of the Fellowship is selected by the Awards, Scholarship and Loan Fund Board of The American Dietetic Association, a six-member board appointed by the Association's President, subject to the approval of the Executive Board. The President and President-Elect of the Association are ex-officio members of this board.

Nominations of candidates shall be accompanied by adequate evidence of their training and ability to pursue their plans in a satisfactory manner. It is expected that applicants interested in newer aspects of nutrition or allied fields shall receive consideration.

Nominations for the Fellowship and all supporting recommendations shall be in the hands of the Executive Director of the Association not later than *February 15, 1958*. Selection of the recipient and notification of the candidate chosen shall be made not later than April 1. Unsuccessful candidates shall be notified at the same time.

Lydia J. Roberts Essay Award

IN 1951, the Gerber Products Company made a grant to The American Dietetic Association offering a $500 annual prize for five years for the best essay on a subject in the field of the history of nutrition. This award was named for Lydia J. Roberts in honor of her outstanding contributions to the nutrition of children. In 1956, the company generously renewed its grant, so that the essay competition might continue for another five-year period. Subjects for the essays for the next four years are as follows:

1958—Development of Use of Vegetables in Infant Feeding

1959—History of Dietary Use of Liver

1960—Changes in Beliefs and Food Practices in Pregnancy

1961—World Problems in Infant Care

Rules Governing the Award

The rules governing the Award for the second five years are as follows:

1. The Award shall be open to: any graduate student of nutrition in an accredited university; any dietetic intern in an internship approved by The American Dietetic Association; or any member of the Association. Previous winners of the Award are not eligible.
2. Essays shall be typed in triplicate, double spaced, and shall not be less than 15 or more than 20 pages in length, exclusive of appended references and appropriate illustrations.
3. Essays accompanied by separate vita of contestant shall be received by the Executive Director on or before June 1 of each year.
4. All essays shall become the property of The American Dietetic Association. Publication of the award-winning essay and any others submitted shall be at the discretion of the Association's Executive Board.
5. Essays shall be judged by a committee of three persons, to be appointed by the Executive Board of The American Dietetic Association. The names of the judges shall not be made public.
6. Essays shall be judged on the basis of original investigation and interpretation of source material; coverage of subject and final conclusion; and on organization, literary style, and documentation.
7. The decision of the judges shall be final. No award shall be made in any year that the judges consider no essay merits an award.
8. The award shall be presented at the Annual Meeting of The American Dietetic Association or other occasion designated by the Executive Board.

Award Winners

The first recipient of the Lydia J. Roberts Essay Award was Felisa J. Bracken, who received in 1952 the $500 honorarium for her essay on "Infant Feeding in the American Colonies." This essay was published in the April 1953 issue of the JOURNAL.

Winner in 1953 of the Award was Dorothy Lefebvre Jefferson, whose essay on "Child Feeding in the United States in the Nineteenth Century" was chosen as best by the judges. This essay appeared in the April 1954 issue of the JOURNAL.

In 1954, recipient of the Award was Alice L. Wood, New York City. Her essay on "The History of Artificial Feeding of Infants" was published in the May 1955 issue of the JOURNAL.

Winner of the 1955 award, for her essay on "Nineteenth Century Leaders of Infant Nutrition," was Geraldine G. Gardiner, St. Louis. This paper appeared in the April 1956 issue of the JOURNAL.

Last year's winner was Dr. Floy Eugenia Whitehead, State University of Iowa, Iowa City whose winning essay, "The History of Nutrition Education Programs for Children in the United States," was published in the September 1957 issue of the JOURNAL.

This year's recipient of the Award is Winifred M. Ayers, Chicago, for her essay on "Changing Attitudes Toward Overweight and Reducing," which was read at the 40th Annual Meeting of the Association in Miami last month.

A.D.A. Loan Fund

TO encourage graduate study in the field of nutrition and dietetics, The American Dietetic Association maintains a Loan Fund for Graduate Study. Members planning to enroll in graduate schools are urged to make use of this fund. Policies concerning these loans follow:

Eligibility: Any person who has been an active member of The American Dietetic Association for at least two years and wishes to pursue graduate study leading to an advanced degree may apply for a loan. No more than three applicants from any one state or territory can be considered.

Home economics graduates about to enter approved dietetic internships are also eligible for loans, when funds in the Graduate Loan Fund exceed by a wide margin the demands of members seeking assistance for graduate study.

How and When to Apply: Applications for loans should be made on special forms available from the A. D. A. office in Chicago. Application must be accompanied by full credentials, including transcript of college credits, photographs, letters of reference, and a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans. Applications must be endorsed by an officer or a delegate of the state dietetic association to which the member belongs, and by one other Association member familiar with the applicant's professional work.

Special regulations pertaining to dietetic interns applying for loans may be found on page 35 of the *Annual Reports and Proceedings 1951-1952, The American Dietetic Association.*

Amount of Loans, Interest, Repayment, and Se-

curity: Loans for graduate study in any amount up to $1000 may be made to qualified applicants, the total loans or installments to be adjusted according to circumstances. Loans to dietetic interns shall not exceed $500.

Interest on loans shall be charged at the rate of 2 per cent annually, beginning one year from the date of the loan. Repayment of principal should be made as soon as possible to allow other members of the Association to benefit from the loan privilege. It is expected that all loans will be repaid within three years from the date of the loan.

Security for loans may be provided by promissory notes. Loans made to dietetic interns are to be cosigned by a responsible person, or may be secured by a life insurance policy naming A. D. A. as the beneficiary. Terms of loans may not be uniform, but may vary according to the facts in particular cases.

Selection of Loan Recipients: Final selection of recipients will be made by the Awards, Scholarship and Loan Fund Board of the Association. The names of applicants and recipients of loans may be kept confidential if so requested.

Mead Johnson Awards

EIGHT GRADUATE awards in dietetics were announced at the Annual Banquet of The American Dietetic Association in Milwaukee on October 11, 1956. These awards have been made possible by an annual grant from Mead Johnson & Company, Evansville, Indiana. At the time, Dr. Helen A. Hunscher, Chairman of the Association's Awards, Scholarship, and Loan Fund Board, announced that the $5000 to be granted annually would be divided into two funds, with $2000 to provide two awards of $1000 each for advanced graduate study and $3000 divided so as to make possible six awards of $500 each for dietetic internships. Preliminary policies which will apply to the granting of these eight annual awards have been worked out by the Awards, Scholarship, and Loan Fund Board and appear below.

Mead Johnson Awards to The American Dietetic Association for Dietetic Interns

A fifth year of education beyond a bachelor's degree is recommended for qualifying for membership in The American Dietetic Association. This imposes a financial problem for the young college graduate and his or her family which, in many instances, cannot be solved. The inevitable result is the diversion of potential dietitians to other occupations.

A grant from Mead Johnson & Company now makes it possible to offer annually six grants of $500 each to applicants selected by the Awards, Scholarship, and Loan Fund Board of the Association. To qualify for the Award the applicant must:

1. Have completed a bachelor's degree from an accredited college or university with a major in: (a) foods and nutrition, (b) institution management, or (c) equivalent education requirements.
2. Have met the academic requirements for admission to an approved dietetic internship.
3. Show promise of being a valuable contributing member of the profession of dietetics.
4. Show evidence of financial need to attain the goal of an adequate education.
5. Have been accepted for an approved dietetic internship.

The following is the procedure for selection of the six recipients of the Mead Johnson Scholarship Awards for Dietetic Interns:

1. Selection of the six recipients of Mead Johnson Awards shall be made by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board of the Association.
2. Applications may be obtained on request from the Headquarters office of the Association.
3. Applications for the scholarships shall be submitted by interested college seniors or graduates to the Executive Director, The American Dietetic Association by April 15 and February 15 of each year. Said application must include a transcript of college credits and pertinent information, including justification for the scholarship.
4. The six recipients shall be selected by a majority vote of the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall review the records and cast the deciding vote.
5. Announcement of the scholarship awards shall be made and the monies made available to the recipient

M. Faith McAuley Memorial Loan Fund

Contributions from members of the Illinois Dietetic Association totalling approximately $1200 have been turned over to The American Dietetic Association to establish the M. Faith McAuley Memorial Loan Fund to help dietitians doing graduate work in food administration.

Applications for use of the M. Faith McAuley Memorial Loan Fund may be obtained from the Executive Director, The American Dietetic Association. Regulations governing the granting of loans from this fund are similar to those listed above for the general Loan Fund.

Other Financial Help

A number of state dietetic associations and approved dietetic internships also offer either scholarships or loans to help dietetic interns during their fifth year. To publicize the availability of these loans and scholarships, a list of such financial aids appeared in the February 1955 issue of the JOURNAL, page 156.

by the Executive Director one month prior to the beginning date of the internship.

Other considerations:

1. If for any reason the recipient fails to enter the internship, the scholarship shall be recalled.
2. The recipient is expected to practice in the field of dietetics for at least a year following the completion of the internship, barring unforseen circumstances.

Mead Johnson Awards to The American Dietetic Association for Advanced Graduate Education in Dietetics

Mead Johnson & Company has made funds available to The American Dietetic Association for two $1000 grants for advanced graduate education in dietetics. The recipients are to be chosen by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. Administration of the entire program is to be carried out by The American Dietetic Association.

To qualify for the Award an applicant must:

1. Be a member of The American Dietetic Association.
2. Intend to practice in the field of dietetics.
3. Appear to possess attributes for success in the practice of dietetics.
4. Need funds to help attain his goal of an adequate education.

The following is the procedure for selection of the recipients of the two $1000 grants for advanced graduate education in dietetics:

1. Selection of the two recipients for the Mead Johnson grants for advanced graduate education in dietetics will be made by the Awards, Scholarship and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board of The American Dietetic Association.
2. Recipients shall be selected by the majority vote of the Awards, Scholarship and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall review the records and cast the deciding vote.
3. Any member of the Association may apply for or nominate one or more applicants.
4. Applications may be obtained on request from the Headquarters office of the Association.
5. Applications for the fellowships accompanied by complete, pertinent information and justification shall be sent to the Executive Director on or before February 15 of each year. Immediately on receipt of each nomination, the Executive Director shall send it to the Chairman of the Awards, Scholarship, and Loan Fund Board.
6. Applicants for the Fellowships shall have the following qualifications:
   a. Be a member of The American Dietetic Association.
   b. Have been accepted for or must have already embarked on a program of graduate study.
   c. Show need for financial assistance for the completion of his program of study.
   d. Be endowed with the attributes for success in the practice of dietetics.
   e. Show interest in and intention of continued practice in the field of dietetics.
7. The Board in selecting recipients, shall give due consideration to:
   a. Those applicants who would be able to complete their graduate study without interruption if they received financial assistance.
   b. Family responsibilities which have made it difficult for the applicant to make adequate financial arrangement for his graduate education.
   c. Competent dietetic interns who should be encouraged to continue graduate study on completion of the internship. Such individuals would not have had the opportunity to earn and save for graduate study.
8. Each award of $1000 will be granted for a period of one year, the year to begin on September 1, the award to be paid in two equal installments.

Fish Cookery

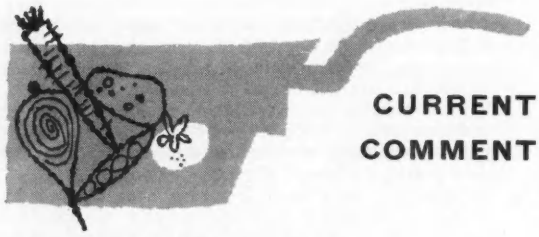
Although only about seven species of fish are well known to the average American, there are actually about two hundred varieties sold in the U.S. This is in addition to the forty varieties of shellfish available in our food markets.

While the flavor, texture, appearance, and size may vary according to the species, the fundamental rules for cooking most fish are few and easy to follow, according to the Bureau of Commercial Fisheries, U.S. Department of the Interior. Summarized, they are:

Avoid over-cooking. There is no such thing as tough fish, requiring long, slow cooking to tenderize. Fish is cooked when the protein is coagulated and the very small amount of connective tissue present has been broken down. Fish is cooked when it "flakes easily when tested with a fork." Beyond this point, cooking causes the fish flesh to become increasingly dry and chewy.

Keep in mind the variation in fat content. Both fat and lean fish can be cooked by any of the basic methods, but lean fish require more added fat during cooking to keep them moist and flavorful.

Handle fish as little as possible during and after cooking. Fish flesh is tender and delicate. Turning many times during frying or broiling and transferring the cooked fish several times before serving, tend to harm the appearance of the final product.



CURRENT COMMENT

The Dietary Department and Public Relations[1]

MARGARET MURRAY HINKLE

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ONE OF Webster's definitions of a tool is "anything which serves as a means to an end." What end do we wish to serve when today we pause to think about the dietary department as a part of the total hospital organization? It would seem that we wish to investigate how this department can and does help or hinder the important business of creating good relations with the public.

However, even though we say the "public," it seems to me that good public relations begin at home. Before we can relate ourselves positively with individuals and groups outside the hospital, we must first have come to grips with how we can do this within our own hospital walls.

First, does each person employed by the hospital know what a dietitian is and what she does? Are they aware that she is a college graduate who majored in dietetics and who subsequently completed the somewhat arduous requirements of an approved fifth year of internship? It is during this fifth year that she is given the opportunity to make theory come alive with the practical demands of supervision, planning, coordinating, and administering. Presumably she approaches her job equipped with knowledge concerning nutrition, physiology, chemistry, metabolism, institution management, and quantity cookery, the internship having pulled these things together in the field of practical experience.

Her prime function in the work situation, then, is in the production and/or service of good, appetizing food to patients and perhaps to personnel and staff. Thus it seems we have touched on one if not the primary dietetic responsibility which ultimately affects the presence or absence of good public relations: consistently good food prepared and served on an efficient, economical basis. Indeed, the hospital noted for its good food has come a long way on the path toward achieving good public relations.

A Patient-Centered Atmosphere

But, what else is there to consider?

There was a time when the hospital patient was considered a cost statistic. Today, we would like to think of him rather as a treatment statistic. It is toward the common purpose of rehabilitating the patient to a more nearly normal, healthy existence that we find ourselves employed in a hospital. Yet, are we or our employees sufficiently conscious of the basic person toward whom all effort should be directed? Are we sufficiently aware of the patient? Do we not become so absorbed in the inanimate objects of the job—papers and memos, pots and pans, as to forget the *person* involved? Yet to the family of that person, to the patient himself, his hospital stay is of grave importance. It is a period in his life which he probably will be able to recall with a vividness rarely equaled. To be able to create a truly patient-centered atmosphere where the patient's needs reign supreme is, I believe, basic to the creation of good public relations.

When attempting to create such an atmosphere, it is important to be ever-mindful that the people who perform the organization's work will apply themselves more earnestly and will receive satisfactions more fully if they are allowed to share and grow in this attitude of other-than-self, if they are helped by the dietitian (in this case) to see their function in terms of the total effort—the effort to leave no stone unturned to help the patient recover. Thinking in this way makes clean dishes seem more important and good coffee a must, and team spirit just "comes naturally." In other words, every employee at every level begins to feel that he personally can help the patient get well in a way that is all his own. At this point, think how many more people are relating themselves more positively to the patient than otherwise might be!

Training as a Public Relations Factor

But a word of caution: it has been said in many ways by many people that everywhere individuals tend to model their behavior after that of their leaders. "If the workers are to grow, so must their leaders." Therefore, permeating all this, I believe, should be the dietitian's resolute belief in the need for the patient-centered atmosphere. It is, as William Keown from the University of Oklahoma has said: "Collective efforts of people are usually neither self-generating nor self-coordinating; leadership, direction, is required" (1).

Part of what we are saying here is that if the employee is not aware of the existence of the total hospital effort, he is apt to see his job as a series of unrelated, tedious tasks which he tends to perform

[1]Presented before the Dietary Session of the annual convention of the Ohio Hospital Association in Cleveland, on April 3, 1957.

with a careless attitude. If this feeling pervades a dietary department, it can be, either consciously or otherwise, a destructive force. It reaches out to affect the presence or absence of good public relations.

Think, if you will, of the pantry maid who picks up the patient's tray after dinner. She can either approach the patient sympathetically and politely taking care to inquire if the patient has completely finished, taking care to move across the room quietly, not to jar the bed or to intrude when privacy is indicated. On the other hand, this employee can be thinking only of the stack of dishes that await her in the kitchen and the sooner she gets the trays picked up, the sooner she will get the dishes done and be ready to go home. The patient can well appreciate the difference in the approach of the worker because it is a very *real difference*. What creates this difference? Attitude is the difference. It is the supervisor and *her* attitude, whether she be the chief dietitian or another supervisory person farther down on the table of organization. Thus it is that we create "public" feeling. The patient is our public. To this end, then, we have come to the need for the skillful training of auxiliary personnel to say nothing of the supervisors.

Details That Please the Patient

What else can the dietary department do to aid in improving and promoting public relations?

We believe that good food helps the patient to be more receptive to other therapies. Food can help to make life seem more secure; it can be the patient's common denominator for evaluating the caliber of other services offered. Most of us will agree that everyone is or considers himself to be "a connoisseur of good food." It is understandable, then, that in the total hospital experience, the one familiar area is eating. So familiar is it that the patient's critical judgment of the dietary department is intensified. His judgment of food influences his judgment of the other therapies offered. Seldom do we see good food service preserving its reputation in the absence of good nursing or vice versa.

We need, therefore, to give attention to:

(a) *Meal hours.* These should be established to suit the patient's schedule and needs and not those of the dietitian or employees.

(b) *A clean environment.* Practical, good sanitation throughout from the delivery dock to the silverware on the patient's tray is a necessity.

(c) *Attractive dishes, glasses, and silverware.* Patterned china or pretty pastel plastic, light-weight yet durable in both cases is recommended.

(d) *Pretty paper tray covers and napkins.*

(e) *An individualized tray card.* This will identify the patient by name and give his room number.

(f) *Tray favors.* Used at holiday time, these constitute a bit of cheer for the patient who must be away from home at Thanksgiving, Christmas, or on Easter morning.

We want to mention, too, the unparalled pleasure —the happiness—felt when a patient is surprised with a birthday cake on "his" day. He probably had convinced himself that "no one will remember"; when someone *does*, he is delighted.

Between-meal nourishments are, to be sure, bodily nourishment. Yet, often they can constitute something we might call between-meal affection. Perhaps thinking of them in this way makes them "twice as nourishing." We are very conscious of this in our psychiatric hospital.

I would like to mention here that well-coordinated, selective menus for patients on normal and modified diets simplify administration in the planning, production, and service of food. In addition, patient satisfaction is increased because the patient has an opportunity to express his likes and dislikes and to choose how much he wishes to eat. Selective menus also provide the dietitian a wonderful opportunity to extend nutrition education and hence to relate herself more positively to the patient.

While mentioning nutrition education, here is a helpful idea: a reminder on the patient's chart requesting the physician to write an order for discharge instruction can help measurably with administration on the units. Patient instruction can be increased and its quality improved because the dietitian can more readily schedule instruction.

A department diet manual is a useful guide. Such a manual can define procedures, request specific prescriptions, and facilitate the modification of diets. Thus smoother relations between the medical, nursing and dietary staffs can be realized, and ultimately, we have fostered better public relations.

Unlimited Public Relations Opportunities

Having come this far together, are we ready to stop and ask ourselves, "Is public relations anything more than greater, more genuine mutual understanding?"

Even with all we have said, there are areas we have not explored. What about the worth of a good personnel cafeteria or the public relations value of a snack shop for guests, family, and busy staff members where round-the-clock service is offered at nominal cost?

The dietitian who endeavors to work not only with the doctor and nurse but with other disciplines, such as social service, can extend herself all the way into the home and community.

The opportunities are unlimited; the horizon is indeed broad and inviting. It will continue to be so for the dietitian and hence for the dietary department as long as we, as dietitians, are ever-mindful of the goal of The American Dietetic Association: "To benefit as many as possible." If, realistically,

we try each day to work toward this goal, our contribution to good hospital public relations can be significant.

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Selective Menus in a Psychiatric Hospital

FLORENCE M. RALLI

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Northport, New York

AT THE Veterans Administration Hospital, Northport, New York, we serve an average of 7200 patient meals and 1080 meals to employees daily. All ambulatory patients have cafeteria service and about 50 patients receive bedside trays. Employees are served from a cafeteria and also with waiter service.

In an effort to provide better food service to both our patients and employees, a selective menu for entrées was begun in the employees food service in July, 1956. For those using the employee cafeteria, a large, easel-type menu was placed near the dining room entrance so that they could study the choices before arriving at the serving counter. On the tables served by waiters, there is a card with the menu, thus, permitting the diner to determine his choice before the waiter comes for the order.

The first four months of the selective-menu plan in employees' food service provided much valuable information for use in estimating requisitions, scheduling production, figuring food cost factors, anticipating plate waste, and evaluating the reaction of those served.

Probably the most important result was the satisfaction of the employees in being able to exercise a choice in their meals. We found this tended to reduce plate waste, since the food taken was more likely to be eaten. There was no apparent increase in food cost, since a person can eat only so much, regardless of the choices available. Also, by careful "pairing" of entrées and the use of entrées planned for patients' modified diets, we soon learned to control production problems.

Having found this selective menu plan acceptable to employees, we felt that it might also be used to advantage with patients, with the following benefits to them:

(a) In choosing or rejecting the food available, the patient would receive training in making independent decisions.

(b) The patient would have an opportunity to exercise his individuality as a person in a reality situation.

(c) By eliminating monotony where no choice was offered, the patient would be interested and anticipate his meals.

(d) The choice-making situation would parallel experiences encountered in normal living, and thus would be a therapeutic experience of value in preparing the patient for living in the community after discharge from the hospital.

The concurrence of the hospital's management was obtained and planning was begun for the introduction of the selective menu for patients. First, of course, employees in the dietary department—dietitians, supervisors, cooks, and serving employees—met to discuss the problems which could be projected. Such meetings provided the employees with a feeling of responsibility in the success of the program. Periodic conferences have also been scheduled after the new procedures have been launched to discuss problems, objections, and settle on policies.

Educational meetings with various other groups in the hospital were also held—ward doctors, nursing personnel, and other personnel working with patients—to explain the objectives of the plan, the anticipated benefits to patients, and the problems which might be encountered.

We then began a program of orienting the patients themselves by announcements in the dayrooms on several successive days. A tape recording was made announcing the change, which could be played back periodically to remind the patients of what was going to happen. The help of the patient government group was also enlisted to gain the cooperation of the patients.

We discovered that these psychiatric patients needed training to be able to make choices, and at first, the nursing personnel was most helpful in instructing patients on the serving line. Also, in the beginning we saw a tendency for patients to follow unthinkingly the choice of the person in front of them, unless they were reminded that they must choose. However, within a week, nearly all patients were aware that a selection of foods was available for their choosing. Some degree of control or supervision of the patients as they go down the line continues to be necessary, particularly for those in a confused state or those who might have a compulsion to overeat and help themselves to both entrées that are offered. Also, sometimes a pa-

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Calcium	.58 gm.	.31 gm.
Phosphorus	.46 gm.	.33 gm.
Vitamin A	2380 I.U.	940 I.U.
Thiamine	.77 mg.	.14 mg.
Riboflavin	1.64 mg.	.56 mg.
Ascorbic Acid	25.7 mg.	3.0 mg.
Vitamin D	161 I.U.	31 I.U.
Cholesterol	38.4 mg.	299 mg.
Calories	270	291 mg.

*Eggnog nutritive value from Bowes & Church, 7th Ed. 1951

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tient's indecision may cause a slight delay in the line if too many choices are present. He hesitates and the whole line tends to lag.

To ease the transition, we introduced the selective menu for patients very gradually, ward serving units with about two hundred patients each having been integrated one at a time about every two months. It took ten months from the time of the first introduction of selective entrées for employees until the final switch-over for patients was completed. The selective menu is now available to all employees and 1700 or 85 per cent of the ambulatory patients on regular diets. Only the following are still not offered a selection: 500 on modified diets, 150 in a deteriorated ward, and 50 having tray service in bed. A choice of entrée is offered at all three meals, and in addition, at breakfast, fruit or fruit juice may be chosen, as well as assorted dry or cooked cereals.

To effect the choice situation in the patient cafeterias, plates are completely made up, some with one entrée, some with the alternate. There is no choice of vegetable and none is presently contemplated. Thus the plate, as served, is complete and ready to be picked up by the patient. We do anticipate offering a choice of salads and desserts some time soon.

Administrative Facets of the Change

Of course, to make such a transition required careful planning. Not only were production schedules and purchasing involved, but the capacity of the equipment on hand had to be considered.

Planning the basic menu entails careful study by the dietitian, for it actually becomes more of a requisition guide with quantity estimates for each item of choice. At first, we went on the premise that the same quantity of each offering would be selected, since we tried to combine entrées of equal acceptability, similar quality and texture, and/or a combination requiring similar methods of cooking, i.e., roast beef and baked ham, pork chops and lamb patties, grilled cheese sandwiches and frankfurters. In actuality, this assumption of a 50:50 ratio sometimes has not worked out, and it is only through experience that demand can be anticipated. Records are kept to use as guides and continuing studies on acceptability of given items in combination with others are being made. Also, the basic menu with the selective items printed on it weeks in advance cannot always be followed exactly, as there must be an allowance for using left-overs. In some dining areas one of the selective items may occasionally be the left-over from a previous day rather than the alternative planned on the original menu. We keep a record of where the left-overs are served and rotate them so that the same patients will not be served left-overs repeatedly.

Preparation time must also be considered in planning the menus. Except in the case of two roast meat items, it is important that one item should require little preparation time, so that additional amounts, if needed, may be prepared during meal service. This allows some control in reducing the amount of left-overs, too, and whole, unsliced pieces of roast meats may be utilized for other meals.

When preparation of an item requires several hours, a sufficient quantity to fill expected demand needs to be prepared, if a selection is to be available throughout the meal. The other item might then be a "short-time" preparation food. Thus meat stew and grilled omelet might be planned as the two choices for one meal. Another important work-and-space factor, we found, is to plan a gravy or sauce which can accompany both entrées in a given meal.

A number of considerations relating to equipment were also necessary, and a survey of cooking equipment (stoves, ovens, and grills) was most helpful. Grills in each serving unit were needed for cook-to-order items, and ample refrigerated and freezer storage had to be planned to take care of prefabricated meats. In a hospital where prefabricated meats are not purchased, meat cutters employed by the hospital might process meats for freezing, thus insuring quantities available when needed.

An increased number of food items also created a need for additional space on the serving counters and steamtables. Tools for portion control, which is a "must" with selective items, were also provided for the servers in the cafeterias.

Reactions of Patients and Doctors

The response to this introduction of selective menus has been most gratifying. When the project was first started, several patients were overheard making comments such as: "My, it's nice to be able to decide for yourself what you'd like"; "It's a wonder they didn't do this a long time ago"; and, "Well, at least now I know they think I've got some sense. Maybe, they'll ask me what I want to do instead of telling me."

Similar comments have been made to the doctors by many patients, indicating to the doctors that psychiatric patients are capable of responding normally if treated like normal people. They no longer feel frustrated and now show "willingness" to assume more responsibility for themselves in other areas. Not only has improvement been shown in the psychiatric status of our patients, but there has also been a general improvement in physical well-being.

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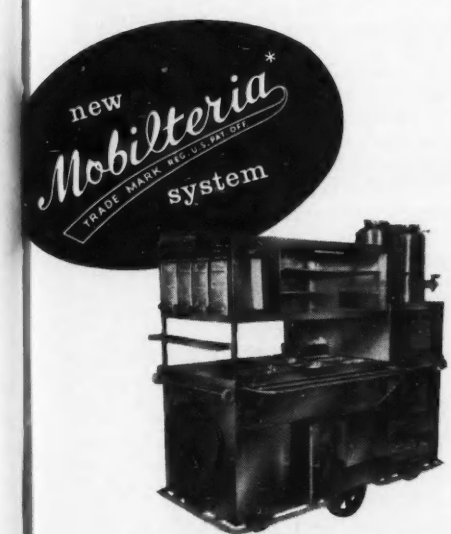

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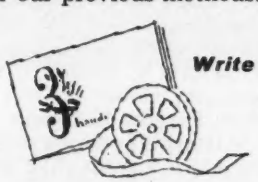

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Frederick Fitzgerald Tisdall—November 3, 1893—April 23, 1949

Not always does the research worker have the ability to make outstanding research contributions and also to put his research findings and knowledge into simple, practical, everyday terms understood by the homemaker and the general public. That was one of the attributes possessed by Frederick Fitzgerald Tisdall of Toronto. He combined the qualities of scientist, pediatrician, nutritionist, agriculturist, teacher, government consultant, organizer, public speaker, and writer with the human touch of friendliness to all.

Many a nutrition investigator has used the micro-technique for determination of calcium and magnesium in body fluids developed by Tisdall and his co-worker, Kramer. And all who are concerned with nutritional needs in pregnancy are familiar with his research study on the influence of prenatal diet on the mother and child.

Frederick F. Tisdall was born in Clinton, Ontario, November 3, 1893. He was educated in the local school, then at a high school in Buffalo, New York, and received his M.D. degree from the University of Toronto (1916). He served his internship at the Hospital for Sick Children in Toronto and then went to Johns Hopkins University to work under Howland, who gathered about him many young men later to become famous in the world of pediatrics and in infant nutrition. It was while working at Johns Hopkins that Tisdall developed the method for determination of calcium and magnesium in body fluids.

In the early twenties, rickets was a serious disease of infants, and it was not until 1922 that vitamin D was named and recognized by McCollum and his associates as a substance distinct from vitamin A. Tisdall's first publication on deficiency diseases was on rickets and tetany in children (1921) and from that time on, he continued and expanded his interest in nutrition. He experimented (1930) with the incorporation of vitamins and minerals in biscuits and cereal mixtures and developed a well known reinforced cereal product for infant feeding. Extensive studies were made (1934) on the antirachitic value of fish liver oil, irradiated ergosterol, cholesterol, and milk for well infants at home. Nutrition of the school child, the aging process, and nutritional studies in pregnancy (1941) were of major interest to him. Surveys of the food habits and nutritional status of Indians in northern Manitoba and the population of Newfoundland led to intensive programs of nutrition education and production of more locally grown foods for these people, with consequent improvement in their nutrition.

During the war he served as consultant for the armed forces of Canada and adviser to the Canadian Red Cross on food parcels for prisoners of war, and he extended his nutrition contributions to include the study of world nutritional problems.

Tisdall went from Johns Hopkins to the staff of the Hospital for Sick Children in Toronto and in 1929 became Director of the Nutrition Research Laboratory of that hospital, where he put into practice the foundation for scientific and clinical work that he had gained under Howland. The laboratory grew under his leadership, and he was responsible for more than 125 scientific publications. Tisdall was an excellent lecturer with ability to teach and to inspire his students; he had imagination and rare organizing ability and was loyal to friends and colleagues.

In 1934, he married Mary Frances McTaggart. They had four sons. On April 22, 1949, he assisted in the laying of the cornerstone of a new children's hospital and then went to his farm which was his chief hobby. He died the next morning while strolling with one of his sons.

REFERENCES: Ebbs, J. H., Tisdall, F. F., and Scott, W. A.: The influence of prenatal diet on the mother and child. J. Nutrition 22: 515, 1941; Ebbs, J. H.: Pediatric profiles. J. Pedia. 48:679, 1956; Drake, T. G. H.; Frederick Fitzgerald Tisdall. J. Nutrition 56: 3, 1955.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*

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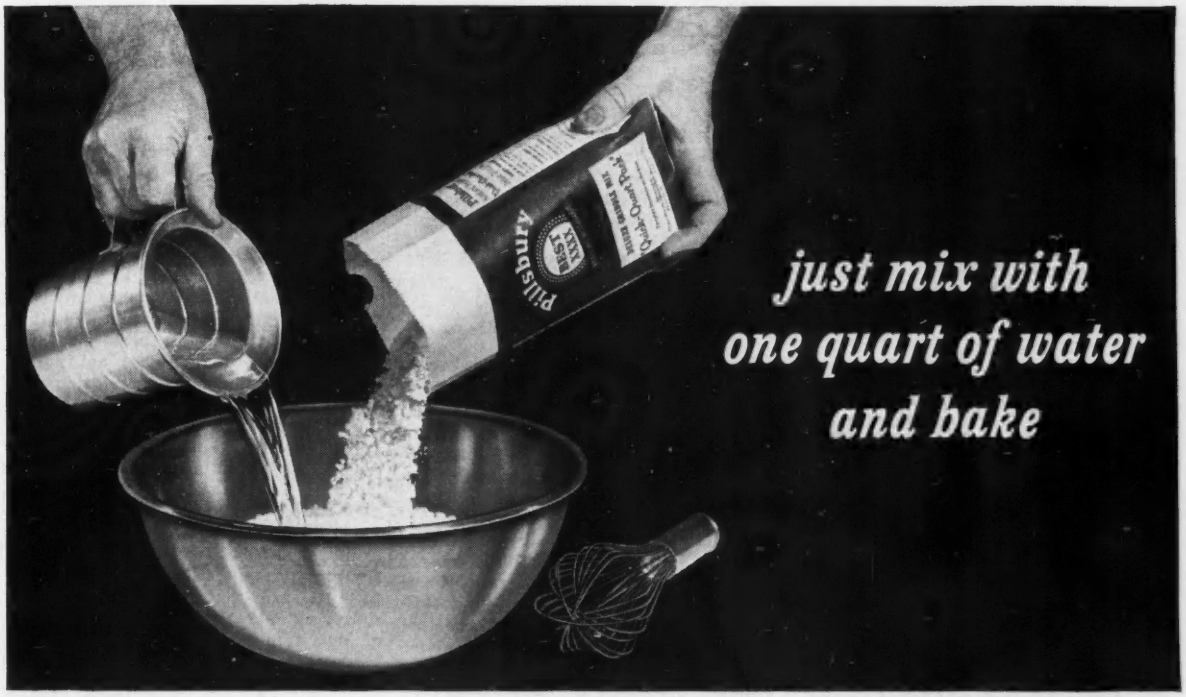

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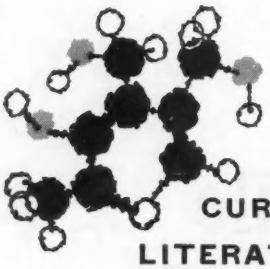


CURRENT LITERATURE

Contributed by Elizabeth H. Tuft, Chicago Wesley Memorial Hospital; Clara Karl, University of Chicago Clinics; and the Journal staff

ACTA ALLERGOLOGICA

Vol. 11, Fasc. 2. 1957

* Allergy to coffee. An occupational disease. E. Bruun.—p. 150.

Allergy to Coffee. Food allergy to coffee is very rare, and it is generally believed that the food-allergic symptoms reported after drinking coffee are not due to coffee *per se*, but to ingredients such as carrots, grain, or chicory. However, inhalation-allergic symptoms to coffee are more common as an occupational disease where coffee is handled. Frequently such patients complain of vasomotor rhinitis, but in some cases they also suffer from asthma and Quincke's edema. Eczema was not observed.

ACTA SOCIETATIS MEDICORUM UPSALIENSIS.

Vol. 62, Nos. 1-2, 1957

* The assay of vitamin B_{12} in human serum. A. Killander.—p. 39.

Vitamin B_{12}. The small vitamin B_{12} content of blood serum requires the use of microbiologic methods of assay. A description of an assay method using *Euglena gracilis* is given, and the accuracy of this method is reported. With regard to the sensitivity as well as to the specificity, this microorganism seems the most suitable for assay. The results are discussed and compared with those of others. The use of different assay techniques and the considerable error involved in vitamin B_{12} assay in human serum were held to be important causes of the varying results published by different workers and for the wide range of the serum vitamin B_{12} levels of normal subjects.

THE AMERICAN JOURNAL OF NURSING

Vol. 57, September, 1957

* Acerola—miracle of the Caribbean. L. J. Roberts.—p. 1148.

Acerola. The acerola fruit is known in the Caribbean as the West Indian cherry, the Surinam cherry, and the Barbados cherry. In Puerto Rico it is called the acerola. This remarkable fruit was discovered in 1945 to contain from 1000 to 3000 ml. ascorbic acid per 100 gm. edible portion. Higher in this vitamin value than any other known food, the acerola is so rich in ascorbic acid that only a very small amount is needed to make other fruit mixtures equal in value to orange juice. The acerola has many possibilities as a natural enriching agent. Nutritionists in the Caribbean have spread the news to the people of the area who are now urged to eat the fruit and to plant its trees in their yards. Thousands of small trees have also been donated to communities by the Agricultural Extension Service operating in the Caribbean. The trees do not grow in any but subtropical climes; they cannot be expected to thrive in the U.S.

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE

Vol. 17, No. 2, 1957

* Studies on the effect of cooking on the bound nicotinic acid of some pure-bred strains of rice. B. R. Mitra and D. K. Chaudhuri.—p. 49.

Niacin of Rice. Almost all the niacin in cereals is in the bound state from which the vitamin can be liberated with mild alkali treatment. The bound niacin in cereals cannot be utilized by micro-organisms or by experimental animals for growth unless it is pre-treated with dilute alkali. In the present work results of determinations of the bound and the total niacin of different varieties of rice samples following different treatments are given.

ANNALS OF INTERNAL MEDICINE

Vol. 47, August, 1957

* Differentiation of macrocytic anemias and diagnosis of pernicious anemia and sprue in remission by accelerated measurement of hepatic uptake of radioactive $Co^{60}B_{12}$. G. B. Jerzy Glass and L. J. Boyd.—p. 274.

Diagnostic Use of Tagged Cobalt. The measurement of hepatic uptake of Co^{60} B_{12} aids in: (a) the differentiation of various macrocytic anemias; (b) the detection or ruling out of pernicious anemias; (c) the diagnosis of sprue; and (d) the differentiation of simple anacidity refractory to histamine, from that due to the gastric atrophy of pernicious anemia in the non-anemic or pre-anemic stage. The hepatic uptake is either entirely abolished or found only in traces in patients with pernicious anemia or sprue, and in some cases of regional enteritis or intestinal shunt. However, the hepatic uptake in sprue patients cannot be corrected by the addition of intrinsic factor, as it can be done in patients with pernicious anemia. The hepatic uptake is normal in anemias due to blood loss, hemolytic anemias, and nutritional macrocytic anemias.

ARCHIVES OF INTERNAL MEDICINE

Vol. 100, August, 1957

* Diabetes mellitus complicated by bacteremia caused by gram-negative bacilli. W. J. Martin, J. A. Spittel Jr., W. M. McConahey, and W. A. Bennett.—p. 214.
* Studies on urinary lipase. III. On the diagnostic value of urinary lipase. M. M. Nothman, J. H. Pratt, and A. D. Callow.—p. 221.

Diabetes Mellitus Complicated by Bacteremia. Bacteremia caused by gram-negative bacilli is of significant occurrence in patients with diabetes mellitus. Of 137 patients with such bacteremia, 14 had diabetes. The urinary tract was the portal of entry in 13 of the 14 patients.

Urinary Lipase. In 463 persons, including healthy and diseased persons, a fat-splitting enzyme has been detected regularly in the urine. The study shows that in patients with pancreatic disease, an increase of the lipase in the urine may be expected and that when urinary lipase is found to be elevated, pancreatic disease may be suspected.

CIRCULATION

Vol. 16, August, 1957

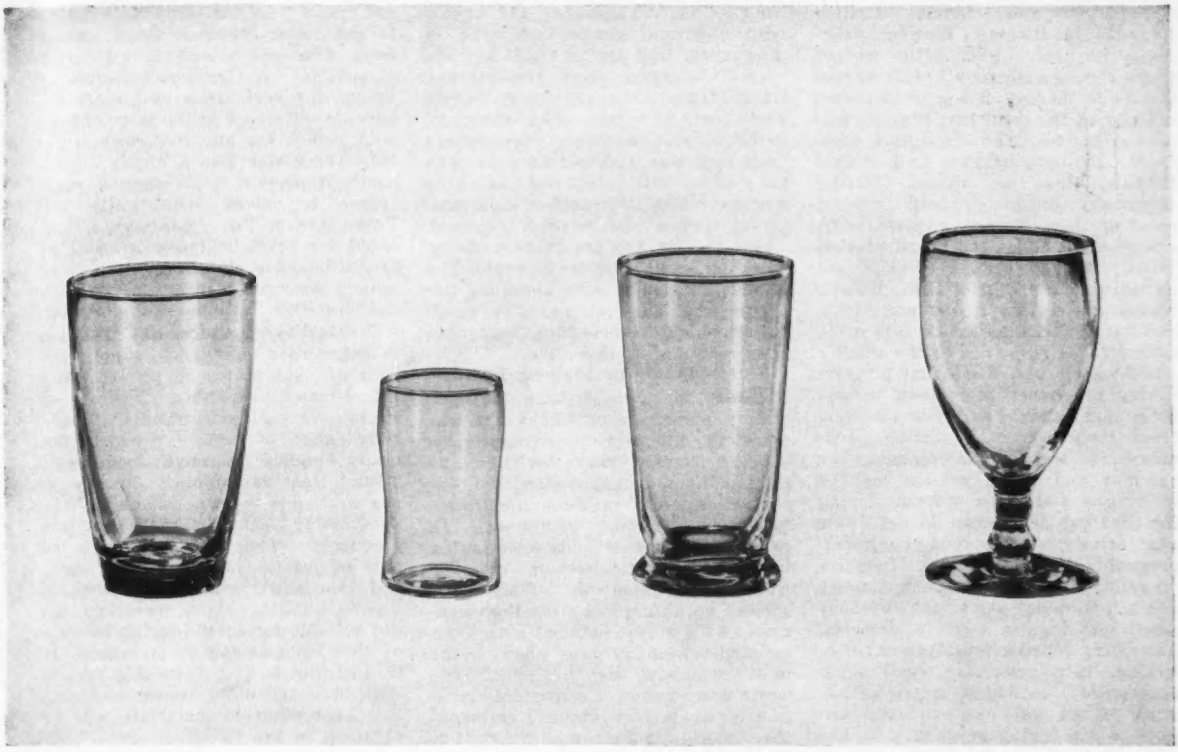
* Atherosclerosis and the fat content of the diet. I. H. Page, F. J. Stare, A. C. Corcoran, H. Pollack, and C. F. Wilkinson, Jr.—p. 163.

Atherosclerosis and the Fat Content of the Diet. An evaluation of scientific evidence linking fats and heart attacks was made jointly by the Nutrition Committee of the American Heart Association and the American Society for the Study of Arteriosclerosis. The evidence at present does not justify any drastic dietary changes, especially in the quantity or type of fat, as a means of reducing the number of heart attacks. The suspected statistical relationship between hardening of the arteries and the presence of fat in the blood appears to be valid, but this does not automatically establish an association between fats in the blood and fats in the diet. Nutritional common sense for better health generally, and probably in regard to atherosclerosis specifically, consists of a balanced, varied diet that adjusts total calories to a desirable weight. Obese persons should consume fewer calories, and for most people, this means less fat, as fats are the most concentrated source of energy. The newer concepts of nutrition readily suggest various types of diet therapy which may prove useful to certain patients with a family history of cardiovascular disease. Research procedures will, in time, provide the facts on which dietary recommendations can be made to the public at large, and which may help in lessening the prevalence of coronary thrombosis.

DIABETES

Vol. 6, July-August, 1957

* The responses of the smaller blood vessels and the serum proteins in pregnant diabetic subject. J. Ditzel and P. Moinat.—p. 307.
* Studies of abnormal carbohydrate metabolism in pregnancy. The significance of impaired glucose tolerance. H. L. C. Wilkerson and Q. R. Remein.—p. 324.
* A study of serum lipoprotein and cholesterol determinations in 901 diabetics. A. D. Lowy, Jr., and J. H. Barach.—p. 342.



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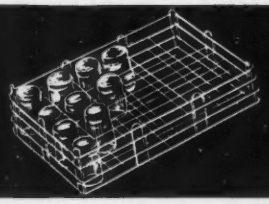

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Vascular and Serum Protein Changes in Diabetic Women. Pregnancy in the non-diabetic woman gives rise to numerous endocrine and metabolic changes. There is increased activity of the pituitary, thyroid, and adrenal cortex. The electrolyte spectrum, acid-base balance, and glucose tolerance may be altered. During pregnancy in the diabetic woman, some of these changes are markedly exaggerated, since the metabolism is grossly altered at the start. Great variations in control of diabetic women are certain during pregnancy, and satisfactory adjustment is often difficult. The responses of the smaller blood vessels and the serum proteins during pregnancy in diabetic women differ qualitatively and quantitatively from those occurring during pregnancy in non-diabetic women. The vascular and serum protein changes in pregnant diabetic women during the first two trimesters do not differ qualitatively from those in young nonpregnant diabetic women. Late in pregnancy in diabetic women, changes due to pregnancy *per se* are superimposed on changes seen in diabetes. Arteriolar constrictions, venular distention, intra-arteriolar erythrocyte aggregation, decreased arteriolar velocity of cell flow, and exudation are more severe during pregnancy in diabetic than in non-diabetic women. Each diabetic patient varies in her quantitative response. The serum protein changes in diabetic women consist, besides those occurring in normal pregnancy, of fluctuations in beta-lipoproteins and gamma$_2$-glycoprotein fractions. Poor control of diabetes and complicating infections usually lead to accentuation of both vascular, intravascular, and protein changes. No absolute correlation was found between the outcome of pregnancy and any single change in the vascular bed or in protein response during pregnancy in diabetic women.

Abnormal Carbohydrate Metabolism. Problems of fetal abnormality exist not only among diabetic women but also among prediabetic women. The increased frequency of large babies among prediabetic women has been found to be about 20 per cent compared with the general incidence of about 2 per cent. The mortality rate of large babies is about twice that of normal-size babies. It is felt that pregnancy exerts a diabetogenic influence. Impaired glucose tolerance and glycosuria are more frequent in pregnant than non-pregnant women. Glycosuria during pregnancy should not be regarded as a benign condition. It has been recommended if there is evidence of impaired glucose tolerance that maximum doses of tolerated insulin be given and the pregnancy be terminated at the thirty-fifth week. A long-term investigation was begun five years ago to study the abnormal carbohydrate tolerance in pregnant women. Of over seven thousand women screened, an impaired glucose tolerance test was found in at least 3.4 per cent. Among 114 women with abnormal glucose tolerance in pregnancy, 10.5 per cent still had abnormal tolerance tests post-partum. Three times as many large babies were born to women with abnormal carbohydrate tolerance for whom treatment was withheld as were born to women with abnormal tolerance who were insulin-treated or to a sample of women with normal tolerance. These results are preliminary, being based on small numbers of cases. The number of women with abnormal tolerance who have delivered is too small to draw any conclusions regarding fetal wastage at this time.

Serum Lipids in Diabetic Persons. A study of 901 diabetic patients with a mean age of 52.5 years was made to determine any correlation between certain characteristics and complications of diabetes and the concentration of various lipoprotein molecules including cholesterol. In general, the serum lipids were higher in white diabetic women than in white women controls. White men showed no differences from their controls. As a group, patients with Kimmelstiel-Wilson disease showed the most consistent rise in lipids. The white women showed consistent elevation of lipids with diabetic retinopathy, atherosclerotic complications, hypertension, and vessel calcification. The men, however, did not show any consistency with these characteristics. The Negro women, as compared with the white women, also showed similar trends in retinopathy, atherosclerotic complications, and vessel calcification. It is suggested that there may be some hormonal influence due to the increase of estrogen in the female during the menopausal period that accounts for cardiovascular complications. The men showed a more definite trend of higher lipids for both poor diabetic control and the taking of insulin. The women showed a lesser elevation in the patients under poor control. This favors the hypothesis that good control may reduce hyperlipemia and possibly diabetic complications.

FOOD RESEARCH

Vol. 22, July-August, 1957

- Effect of color of beef fat on flavor of steaks and roasts. L. D. Malphrus.—p. 342.
- Microwave energy in freeze-drying procedures. D. A. Copson and R. V. Decareau.—p. 402.
- The red pigment of precooked irradiated meats. A. L. Tappel.—p. 408.

Effect of Color of Beef Fat on Flavor. Yellow pigment, which is almost all carotene, in beef fat has long been regarded as an undesirable characteristic. Sometimes the price must be reduced below that of similar beef with white fat. Theories as to the source of the yellow pigment are intake of large quantities of green feed or feed high in carotene, older cattle which have had more time to deposit carotene in fat, and the breed. A study was made in which steaks and roasts were tasted by taste panels to determine whether there was a taste difference associated with color of beef fat. A significant number of judges for beef steak and roast detected a difference in the taste of beef with yellow fat and that with white fat. There was also a highly significant proportion expressing a preference for steak with white fat. There was no flavor preference indicated for roast beef due to color of fat, although a significant number of tasters observed a difference between samples when fat color was different.

Freeze-Drying Procedures. The use of microwave energy to supply the heat of sublimation in the receding ice volume is described. The use of microwave energy permits the rapid dehydration of certain products not easily handled by conventional processes. Heat is supplied directly to the inner ice volume because of the penetrating nature of energy at this frequency. Thus products, such as cuts of meat, can be dried in much less time than formerly and without loss in quality. Many materials are not suitable for freeze-drying because of their dimensions or structure. It is anticipated that favorable results with bone and other tissues and similar heat-sensitive materials will be obtained in the future.

Color Changes in Irradiated Meat. When precooked meats are irradiated, the normal brown or gray hematin pigments are converted to uncharacteristic red pigments. This color change is undesirable because the consumer judges the degree of doneness of cooked meat by its color. It was found that irradiation of precooked meats converts the normal brown denatured globin hemichrome pigment into a red pigment which is best characterized as denatured globin hemochrome.

FOOD TECHNOLOGY

Vol. 11, August, 1957

- Antibiotics in poultry meat preservation. A comparison of the tetracyclines. R. H. Vaughn, C. W. Nagel, F. M. Sawyer, and G. F. Stewart.—p. 426.
- Low-moisture peaches prepared from fresh fruit. R. S. Bean, T. H. Schultz, and N. J. Downes.—p. 430.

Antibiotics in Poultry. A comparison was made of the effectiveness of three tetracycline antibiotics for improving the storage life of chilled poultry. In four trials the birds were prepared as cut-up, tray packed fryers, and in two trials the birds were packaged whole in polyethylene. All were stored at 7.2°C. (45°F.). Oxytetracycline treatment increased storage life in three of six trials, chlortetracycline in five trials, and tetracycline in all six trials. Increases in storage life ranged from 0 to 3 days. Whole birds kept much better than those which had been cut-up.

Low-Moisture Peaches. The moisture content of ordinary dried fruits is in the range of 15 to 30 per cent. Because of this relatively high mois-

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ture content, the fruit deteriorates rapidly at high temperatures. Seven lots of low-moisture freestone peaches, each representing a different supplementary treatment, were prepared from fresh fruit by drying in vacuum to less than 1 per cent moisture. This fruit is considerably more stable at high temperatures than dried peaches with 20 per cent or more moisture content. The limitations and possibilities of these seven supplementary treatments and of four types of packaging are discussed.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 5, August, 1957

* Fats in human nutrition.—p. 564.
* Amino acids in nine frozen vegetables. D. M. Murphy, B. E. Kline, R. N. Robbins, L. J. Teply, and P. H. Derse.—p. 608.

Fats and Circulatory Diseases. There is much controversy concerning the role that fats play in circulatory diseases. It is accepted that some fats are essential to good human nutrition. An ideal fat intake will range from 20 to 45 per cent of total calories. Beyond the question of total fat intake, interest is placed on the relative and absolute intakes of three polyunsaturated fatty acids: linoleic, linolenic, and arachidonic. As yet there is no indication for major changes in absolute intakes. Vitamin B_6, methionine, steroid hormones, and other substances are believed to play an important role in the body's use of cholesterol. Recently, more attention has been given to the steroid hormones, as sex differences appear significant in cholesterol metabolism. It is the unanimous opinion that there is insufficient evidence to change dietary habits. It is felt that overweight represents a serious health risk, and this should be corrected. Recently, however, various pharmaceutical houses have been releasing products with a high proportion of linoleic acid designed to lower cholesterol levels.

Amino Acids in Frozen Vegetables. This report gives the results of the determination of ten amino acids in nine frozen vegetable products, which contain appreciable amounts of protein. The amino acids are: arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. Sample packages of the following vegetables were taken from all parts of the U. S.: baby Lima beans, Fordhook Lima beans, broccoli spears, Brussels sprouts, collard greens, cut corn, black-eyed peas, green sweet peas, and French fried potatoes.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 5, June, 1957

* Food consumption of "older" families. C. Van Syckle.—p. 603.

Food Consumption of "Older" Families. Food consumption of twenty-seven older families, consisting of adults all fifty years of age or older, was studied. The average nutrient value was well above that recommended by the National Research Council. However, fourteen families had supplies deficient in one or more nutrients. Ascorbic acid, calcium, and riboflavin were most frequently found in less than the recommended amounts. If amounts had been adjusted for losses during cooking and more accurately adjusted for waste, the number of deficiencies would have been higher. Although low income may have been a factor in determining the adequacy of food supplies, food habits were probably much more important. A relatively high proportion of each sex drank little or no milk except in tea or coffee. And women drank milk much less frequently than men. It is also felt that loss of ascorbic acid in food preparation was high.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 164, August 17, 1957

* Role of hormones in protein metabolism. R. E. Olson.—p. 1758.

Vol. 164, August 24, 1957

* Dietary fat—its role in nutrition and human requirement. L. E. Holt.—p. 1890.
* Some biochemical aspects of lipid and lipoprotein metabolism. D. S. Fredrickson.—p. 1895.
* Pathological lesions related to disturbances of fat and cholesterol metabolism in man. W. S. Hartroft and W. A. Thomas.—p. 1899.
* Dietary control of serum lipids in relation to atherosclerosis. E. H. Ahrens Jr., J. Hirsch, W. Insull Jr., T. T. Tsaltas, R. Blomstrand, and M. L. Peterson.—p. 1905.
* Diet and the epidemiology of coronary heart disease. A. Keys.—p. 1912.
* Nutritional studies relating to serum lipids and atherosclerosis. Therapeutic implications. F. J. Stare, T. B. Van Itallie, M. B. McCann, and O. W. Portman.—p. 1920.
* Serum cholesterol and phospholipid levels. Foreign Letters—India.—p. 1957.

Vol. 164, August 31, 1957

Atherosclerosis and the fat content of the diet. I. H. Page, F. J. Stare, A. C. Corcoran, H. Pollack, and C. F. Wilkinson Jr.—p. 2048.

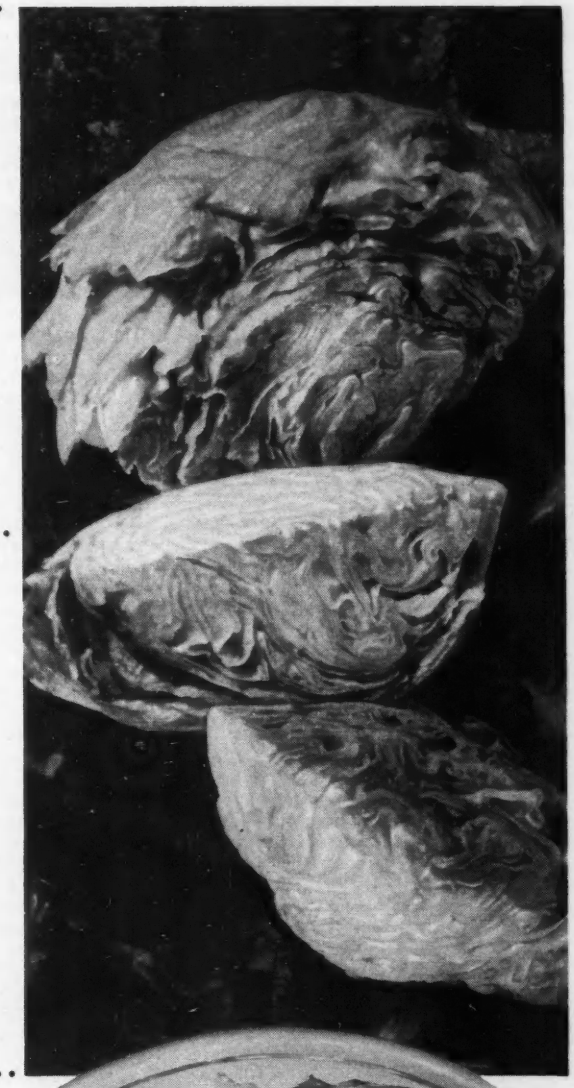
Hormones in Protein Metabolism. Although the precise biochemical function of a hormone has yet to be established, it is clear that several hormones influence protein metabolism in such a way as to produce effects of interest to both the clinician and biochemist. This paper presents the role of the hormones in protein metabolism in clinical situations that involve imbalance of endocrine secretions under physiologic or pathologic conditions. The clinical situations given include growth, starvation, diabetic acidosis, trauma, and inflammation. The role of diet therapy, which bears an important role in the management of all these clinical situations, is discussed in its relationship to the endocrine aspect of each case. Endocrinology and nutrition are inseparably associated at the cellular level, and their important interrelationship should be understood in the practice of medicine as well.

Dietary Fat. An excellent review, which is both readable and understandable, on the subject of dietary fat is given. The functions that fat has in nutrition are discussed, including its effect in various clinical situations.

Lipid and Lipoprotein Metabolism. Determination of the plasma cholesterol level alone no longer represents an adequate examination of the blood lipids. The present work has presented some aspects of the metabolism of fat and the mechanisms of fat transport in search for a key to the cause of atherosclerosis. A group of lipid-protein complexes that represent the form in which fat is normally present in the blood and lymph have been elucidated. The process by which newly absorbed fat is removed from the blood is now partially understood. Hydrolysis of triglycerides catalyzed by the enzyme lipoprotein lipase is probably an integral part of this process. Decreased plasma lipoprotein lipase activity has been correlated with at least one form of hyperlipemia. The plasma unesterified fatty acids, which are the only blood fats that circulate bound to albumin, appear to be of great importance in the transport of fat to the tissues to be oxidized. This fraction of the plasma lipids may have future clinical significance.

Pathologic Lesions. A study of pathologic changes related to disturbances of fat and cholesterol metabolism in various sites, such as in the liver, kidneys, heart, skin, and tendon in both animals and man, indicates that all these lesions have a number of features in common. The cells laden with lipids eventually degenerate and disintegrate, to be replaced by granulation tissue and eventual scar formation. Both cholesterol and triglyceride deposits not only may initiate tissue necrosis but also may be the result of the latter. Whether the lipid deposits are primary or merely a secondary sequence, it is impossible to determine from the end result. It remains to be established whether the lipid disorder, even if primary, is a local disturbance in the arterial wall or a focal manifestation of a systemic alteration of fat metabolism or transport. It has not yet been possible to determine by animal experiments the relative importance of various factors in initiating atheroma as compared with their possible roles in the development of its complications, notably myocardial infarction. To carry out such studies, it is necessary to develop an experimental model in which myocardial infarction can be produced at will. Then the relative importance of some of the dietary procedures can be evaluated. Until further experiments solve some of the present questions, it is likely that myocardial infarction will continue to be the most

Why risk your investment in costly produce by using an ordinary salad dressing?



FOR ONLY A FRACTION OF A CENT MORE PER SERVING YOU CAN USE RICH, FULL-BODIED

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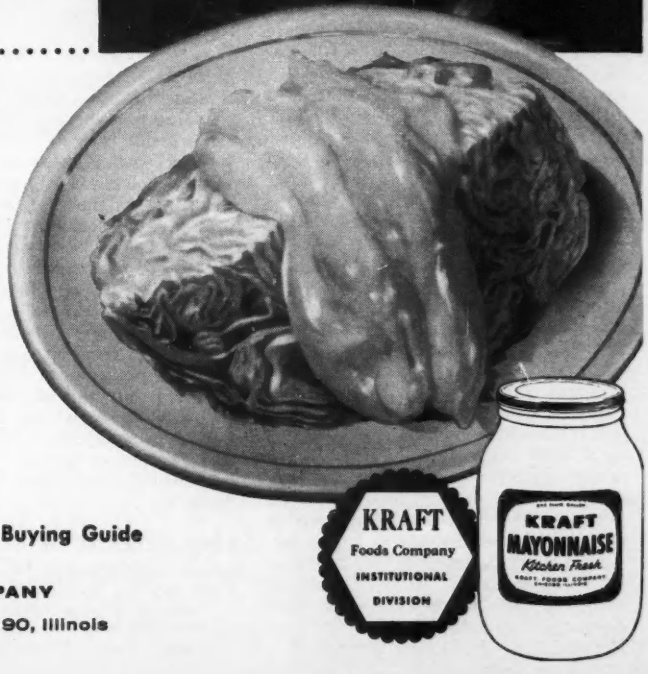

You use choice lettuce in your salads, so why risk spoiling the salad *and* customer dissatisfaction by using just any mayonnaise? For only a fraction of a cent more per serving you can dress your salads with full-bodied Kraft Mayonnaise!

And the quality of Kraft Mayonnaise justifies paying this slight difference, because here's true mayonnaise at its finest—luxuriously rich, made from costly salad oil, eggs, fragrant vinegar and seasoning. *Nothing else!* Packed in 1-gallon jars and 4-gallon tins.

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important single cause of death in the American population and a tremendous medical problem.

Dietary Control of Serum Lipids. The hypothesis that dietary fats affect atherogenesis remains unproved. Serum lipids can be altered by dietary means, and experiments lead to the presumptive conclusion that unsaturated fats in the diet can lower the cholesterol and phospholipid levels. Serum triglycerides, however, can be made to rise on low-fat diets and to fall when on high-fat intakes. Thus, serum lipids are affected by both quantity and quality of ingested fat. Radical changes in diet are not recommended to the general public at this time. However, patients with existent or threatening arteriosclerosis may be justifiably advised to eat higher proportions of unsaturated fats.

Diet and Coronary Heart Disease. The hypothesis that the diet, through its fat content, plays an important role in the development of coronary heart disease is sustained by a wide variety of new evidence from both laboratory experiments and epidemiologic studies. There is error in the argument that the Eskimo or the Navajo discredits this hypothesis. Nothing is really known about the incidence of coronary heart disease among Eskimos. Also, the majority of Eskimos no longer eat a high-fat diet. It has been inferred that the Navajo eats a typical American diet yet has little coronary disease. On closer analysis of the diet, it was found that the percentage of total calories as fat was lower than the American diet, and the percentage of fat derived from meat, eggs, and dairy products was lower. Japanese living in Japan, Hawaii, and California were studied. As the Japanese ate more fat in Hawaii and still more in California than in Japan, the incidence of coronary disease increased respectively. Also in Finland, where butter fat consumption is one of the highest in the world, there is a high frequency of the disease. The concept that physical inactivity promotes the disease is considered invalid. Recent studies in the U.S. and Norway fail to show any large differences between the incidence in men in different occupations. It has been shown that alterations in dietary protein do not affect the blood response to dietary fat. It appears that the dietary fats exert their effects not only through affecting the serum cholesterol level and thus influencing atherogenesis but also through effects on the tendency to develop thrombosis. Although the more unsaturated fats may not promote hypercholesteremia, the more powerful effect of the saturated fats is such that blood cholesterol levels cannot be controlled unless the saturated fats are reduced. With a judicious choice of fats, serum cholesterol level can be controlled without an extreme low-fat diet. But a diet very high in any fat seems undesirable because of the high caloric content and because of the possibility of undesirable effects on blood coagulation and fibrinolysis.

Diet and Atherosclerosis. This paper is made up largely of questions and answers regarding atherosclerosis. It is felt that the current excitement over dietary fat and atherosclerosis is based on relatively limited studies and these are on experimental bases. It has not been conclusively established that dietary factors, and specifically total fat intake, are of primary etiologic importance in atherosclerosis. Little information is available concerning the supplementation of ordinary American diets with oils rich in essential fatty acids. Hence, it is not justifiable to recommend drastic changes in either quantity or type of dietary fat for the general population. Obese persons with cholesterol levels that are not elevated might well reduce their body fat on any well-balanced diet. Obese individuals and non-obese individuals with consistently elevated cholesterol levels have somewhat more reason to attempt to lower them. This can be done by reducing the calories derived from fat so that fat provides 25 to 30 per cent of the calories rather than the customary 40 to 45 per cent. Then, substitute unsaturated fats that are good sources of the essential fatty acids, particularly linoleic acid. Another alternative is a diet of usual fat intake, 40 to 45 per cent, but with much of the fat rich in the essential fatty acids. However, in the field of research, more emphasis should be toward further studies, rather than toward suggesting changes in our accustomed diet, when it is not sure if, or how, they should be changed.

Serum Cholesterol and Phospholipid Levels. There has been an increasing incidence of coronary disease in the armed forces in India. A class association was found of hypercholesteremia and coronary disease. The cholesterol metabolism was studied on normal Indians of four age groups, each group having both non-vegetarians and vegetarians. The total serum cholesterol content was almost the same as that reported for Europeans and Americans. The cholesterol level increased with age and weight, but was not affected by smoking, alcoholic habits, or racial differences. The non-vegetarians had a 16 per cent higher level than the vegetarians. The ratio of total cholesterol to lipid phosphorus was almost the same for all age groups. The blood pressures were within normal limits, but those subjects who were found to be hyper-reactors by the cold pressor tests showed relative hypercholesteremia.

THE JOURNAL OF NUTRITION

Vol. 62, August, 1957

* The calcium, phosphorus and magnesium balances of young college women consuming self-selected diets. F. I. Scoular, J. K. Pace, and A. N. Davis.—p. 489.
* Nutritional improvement of white flour with protein and amino acid supplements. P. D. Deshpande, A. E. Harper, and C. A. Elvehjem.—p. 503.
* Utilization of amino acids from foods by the rat. IV. Tryptophan. C. H. Lushbough, T. Porter, and B. S. Schweigert.—p. 513.

Mineral Studies of Young Women. Calcium, phosphorus, and magnesium balances were determined on young college women consuming self-selected diets. The average total intakes of calcium, phosphorus, and magnesium permitting positive balances in the sixteen- to twenty-year-old girls were 1.50, 1.17, and 0.95 gm. as compared with 1.70, 1.14, and 1.02 gm., respectively, for those over twenty. The older subjects drank more milk, had higher calcium intake, and more positive calcium retentions than the younger group. The younger group consumed more phosphorus and had more positive phosphorus retentions. Both groups consumed the same amounts of magnesium, but the younger group had more negative balances. In general, more of the negative retentions occurred among the "taller" young women than among those below the average height in each age group.

Supplementation of White Flour. Other investigators have found that the rate of growth of young rats with lysine and threonine as supplements to wheat flour is inferior to that obtained with the same amino acids added to bread which contains about 3 per cent non-fat milk solids. In the present study, rate of growth was increased when the diet of 78 per cent of white flour was supplemented with lysine and threonine. Further improvement in growth was obtained only when seven more essential amino acids were added. Maximum growth was obtained when intact protein formed part of the supplements. But growth was not as rapid when the protein was replaced by equivalent quantities of crystalline essential and non-essential amino acids, indicating some superiority of intact protein over amino acids. Fatty infiltration of the liver was prevented by the lysine supplement to white flour.

Utilization of Tryptophan. Experiments were done to provide a test procedure for the quantitative evaluation of the utilization of tryptophan from foods. Using the male weanling rat, a tryptophan-deficient basal diet was given and graded levels of L-tryptophan or known amounts of it in foods added to the basal diet served as the criterion for determining quantitative utilization of tryptophan. Tryptophan utilization for raw and roast beef, ham, lamb, non-fat dry milk, overheated soybean meal, and split peas ranged from 75 to 107 per cent. For unheated and normally-processed soybean meals and rolled oats, the utilization ranged from 117 to 132 per cent. This suggests that cooking or heat processing may result in reducing the availability of tryptophan to support growth.

NEW! LOW-CALORIE

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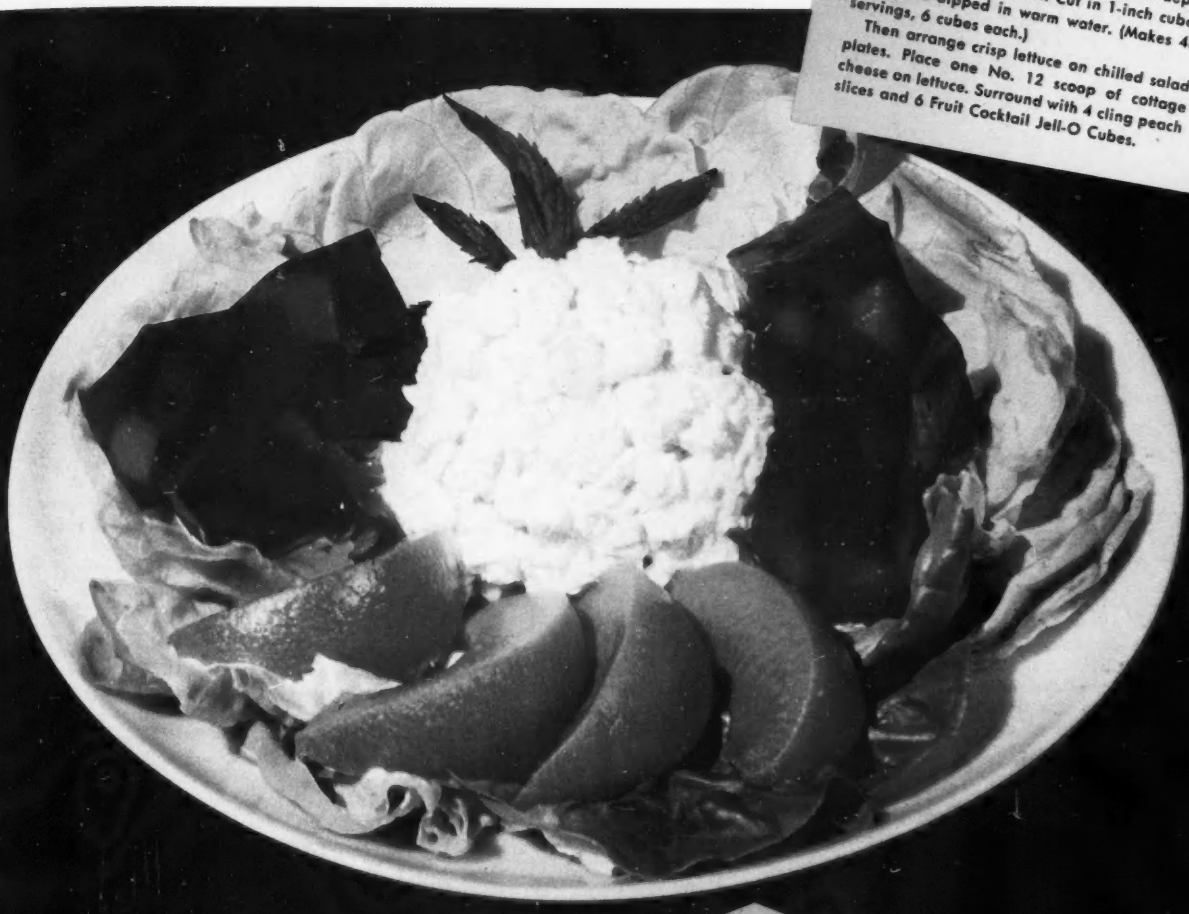

idea:

FIESTA JELL-O PEACH SALAD

Prepare Fruit Cocktail Jell-O Cubes by dissolving 1½ pounds Jell-O (any red flavor) in 1 gallon hot water and canned fruit juice. Chill until slightly thickened. Fold in 2 quarts drained fruit cocktail. Pour into pans to depth of 1 inch. Chill until firm. Cut in 1-inch cubes with knife dipped in warm water. (Makes 48 servings, 6 cubes each.)

Then arrange crisp lettuce on chilled salad plates. Place one No. 12 scoop of cottage cheese on lettuce. Surround with 4 cling peach slices and 6 Fruit Cocktail Jell-O Cubes.

Here's an eye-catcher that your customers will enjoy! It has appetite and sales appeal aplenty. It's low in cost—for bigger profits. And low in calories, too—something your diet-conscious customers will appreciate. It'll pay you to feature Fiesta Jell-O Peach Salad. For streamers, menu clip-ons and posters, write: General Foods Institutional Kitchens, White Plains, N. Y.

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NUTRITION ABSTRACTS AND REVIEWS

Vol. 27, July, 1957

* The amino acid requirements of adult man. W. C. Rose.—p. 631.

Amino Acid Requirements. Investigations on human beings of amino acid requirements were begun during 1942 and were almost complete by the spring of 1952, although a few additional experiments were made during the early months of 1955. Except for preliminary reports, publication of the findings, particularly of the quantitative studies, was postponed deliberately to permit the accumulation of as much information as possible before final conclusions were drawn. The results now available are believed to be sufficiently numerous and definite to warrant positive deductions. A detailed description and discussion is given of the methods and procedures used in determining the qualitative and quantitative amino acid requirements for young men. Tables are included.

NUTRITION REVIEWS

Vol. 15, August, 1957

* Nutrition in the mammalian embryo. O. A. Schjeide.—p. 225.

Embryo Nutrition. It is felt that metabolic mechanisms of the adult may be more clearly understood by observation during embryonic and fetal life. However, there are many barriers to investigation of nutrition in the mammalian embryo, and one of the more formidable is the maternal organism. To a considerable but variable degree, the nutrition of the embryo is a function of the food intake of the mother. However, the embryo takes priority over the mother with regard to certain foodstuffs. This article presents the results of various studies of embryo and fetal nutrition. Experiments have been carried out which show that specific and general nutritional deficiencies produce abnormalities. It is impossible from most of the work done thus far to sort out the numerous effects and establish the details of their occurrence. Utilization of radio-labeled nutrients should prove helpful to studies in the future.

PUBLIC HEALTH REPORTS

Vol. 72, August, 1957

* Radiation preservation of food. H. F. Kraybill.—p. 675.
* Pesticide residues in fluid market milk. P. A. Clifford.—p. 729.

Food Radiation. Treatment of foods with ionizing radiation promises revolutionary advances in food preservation possibilities. There are still major technologic problems in regard to acceptability of certain foods processed at high radiation levels. Treatment at lower levels, which produces such results as inhibition of sprouting of potatoes, destruction of trichina in pork, increase in the keeping quality of food under refrigeration, and destruction of insect infestation, is generally successful. In experimental work, radiation-sterilized foods have not been found toxic, nor has any evidence of carcinogenicity appeared. Reproduction and lactation of animals on irradiated foods are the same as those on non-irradiated foods. The nutritive values of these foods has been found to be equivalent to those for heat-processed foods.

Pesticide Residues in Milk. More than 60 per cent of 801 market milk samples collected in a countrywide survey in 1955 contained residues of chlorinated organic pesticides as indicated by the fly bio-assay method. Most of the residues were in trace amounts that were not identified specifically. About one-fifth of the samples showed a high kill of flies and were examined and found to contain DDT or related compounds. Market milk may contain up to 1.5 p.p.m. DDT or related compounds or both. Two obvious sources of contamination of milk with chloro-organic pesticides are residues on forage and contamination as a result of insecticide sprays, either on the cows or in barns and dairies. It is not known which is mainly responsible for the contamination. Investigation is being done by the Food and Drug Administration. Organic phosphate pesticide residues were not detected in these milk samples.

ROYAL SOCIETY FOR THE PROMOTION OF HEALTH JOURNAL

Vol. 77, August, 1957

* New methods in food preservation.
  (a) Antibiotics. E. M. Barnes.—p. 446.
  (b) Radiation preservation of foods. R. S. Hannan.—p. 457.
* World nutrition. C. D. Williams.—p. 474.
* The influence of the baking process on the destruction of salmonellae in certain baked products containing egg albumen. R. A. Knight and J. B. M. Coppock.—p. 528.

Antibiotics. There has been a steady increase in the number of countries using one or more antibiotics as food preservatives, although at the moment this is not allowed in Britain. Antibiotics differ markedly in their antimicrobial action, being active against bacteria but having little activity against yeasts and molds. Antibiotics have an advantage over the ordinary preservatives in that they are highly active against bacteria at a pH near neutrality of many foods and are not inactivated by proteins or fats. One problem presented by the selective action of antibiotics is that the spoilage pattern may be so altered that some normal indications of contaminated foods, such as obnoxious odors or flavors in raw products or blowing in canned products, may be absent although the material is in a poor bacteriologic condition. A further problem is the real danger of the growth of resistant organisms, both normal spoilage types and pathogens. If, in Britain, antibiotics could only be used in plants and under conditions approved by the government, they could improve the standard of hygiene in some factories and yet not mask the insanitary handling of foodstuffs.

Radiation of Foods. Radiation of food is still some way from general application in Britain, but there are some aspects which are beginning to show promise for commercial use. Radiation of dry, prepared packaged foods can control insect infestation. Changes in wheat and flour are small, but foods of high lipid content have some flavor changes and their storage life might be shorter. Irradiation in the control of microbial spoilage presents some problems. There is a relatively high radiation resistance of micro-organisms, and viruses and bacterial spores cannot be affected. In radiation of meats, there can be changes of odor, flavor, color, and appearance. The most likely trend in the future will be a combination of radiation with heat processing or antibiotics. Cured meats show less damage than uncured meats, probably due to the protective action of the curing salts. Limited work has been done on fruits and vegetables as the cost of processing alone is high and the effect on texture is undesirable. Work is being done on miscellaneous products. Heat-sensitive packaging materials, such as cardboard and plastics, show promise for irradiation. Few of the potentialities of radiation are clearly defined in terms which will yet indicate their commercial application in Britain, but work is continuing and many points of interest should be resolved during the next few years.

World Nutrition. The subject of nutrition is clearly linked with that of food, but it is not identical. At present, there is no accurate estimate of the extent to which malnutrition exists. Nutritional surveys are of limited value as they are seldom conducted by child health specialists. It is essential to world nutrition that food supplies be adequate. Some estimates have shown that two-thirds of the world's population does not get enough to eat. Food production is slowly increasing, but the population is also increasing. The prevention of malnutrition requires not only increased food production, but it also needs long-term programs in the development of food resources and utilization rather than short-term measures. Greater attention needs to be given to individual problems and less reliance on mass methods of education. There is a need for better clinical work in nutrition, as the course of almost any disease depends on the nutritional state. This would include opportunities for the study of cases of malnutrition, their varieties, degrees, the basic causes, whether they be nutritional, infective, social, or psychologic, their treatment, and subsequent supervision. This must include the training of staff to fulfill this clinical aspect.

Coffee with PREAM is good . . . and hot!

Sanitary PREAM Packets cost less per serving than cream — more economical than half-and-half!

Creaming hot drinks with cold liquid cream can quickly make them lukewarm and unappetizing to your patients.

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Send today for a sample box of individual PREAM Packets. Try PREAM, and see how your patients appreciate really good, really *hot* coffee.

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Yes, I would like free samples of Pream Packets, to measure patient acceptance and serving economy.

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Salmonellae in Baked Products. A heavy infection of two types of salmonellae in egg albumen used in baked products was destroyed during baking. A heat-resistant strain of salmonella added to egg albumen 18 hr. before mixing to meringues was also destroyed. There is no risk of baked products containing salmonellae on leaving the oven, even allowing for variations in bakery practice and for a high level of infection in the albumen used in the recipes.

UNITED STATES ARMED FORCES MEDICAL JOURNAL

Vol. 8, August, 1957

* Water requirements of man. C. G. Wilber. —p. 1121.

Man's Water Needs. The intake of water needed by man varies under conditions of environment (temperature, humidity, sunlight) and of activity. No single table of water allowances can be set up which will apply in all situations. The water balance system in man is regulated physiologically, and training or will power cannot change this balance. As men become acclimatized to heat, their voluntary intake of water increases. However, this intake replaces only about half the water lost by sweat. Thirst is not an adequate index of water needs. That dehydration resulting from sweat losses in the heat is truly physiologic can be demonstrated by the improved performance of physical work after a sufficient intake of water.

FOOD SERVICE MAGAZINE

Vol. 19, September, 1957

* Adequate wiring story. E. G. Alberts.—p. 22.
* Nylon brushes. N. Grey.—p. 32.
* Glass tableware story. J. Drager.—p. 34.

Adequate Wiring. The first step in a successful wiring program is a scouting report on basic electrical characteristics. It is important to remember that single-phase wiring is used for small heating assignments, small motor loads of the 110-volt variety, and so on. Three-phase wiring is designed to handle larger power and heating loads and offers the distinct economy advantages of lighter wire, smaller fuses, and better service. It is essential to have correct and complete electrical information regarding the circuit on which the equipment is to operate. The voltage, type of circuit—direct or alternating current, single- or three-phase—should be checked with the electric utility or with the electrician on the job. Obtain recommendations from the utility for method of metering to obtain best possible electric rates. It is undesirable to use equipment rated for high voltage on low voltage outlets, as the appliance will produce only one-quarter of the wattage or heating effect. Equally undesirable is the use of an appliance rated for low voltage on a high voltage outlet. In this case, even though equipment would be much faster in preheating and temperature recovery, there is an overloaded condition that may affect the life of the heating units.

Nylon Brushes. Tailored for all restaurant equipment, nylon brushes are now compiling an untouchable record in the rugged job of restaurant sanitation. Thanks to two revolutionary factors—crimped nylon bristle, and semi-hard plastic-like brush blocks—the best brushes designed for all types of restaurants are now on the market. These brushes won't mar or scuff equipment. They're heat resistant, water resistant, bacteria resistant, and the plastic blocks outwear wooden blocks. The nylon bristles outwear vegetable fibers, have long "bend-recovery," longer "flex-life," negligible moisture absorption, and resist heat up to 400° F. There's no doubt the brushes reduce cleaning time and save man-hours and money in addition to being easier to keep clean and more sanitary than the now old-fashioned bristle and wood brushes.

Glass Tableware. Low price and high cleanability are the biggest factors contributing to the superiority of glass tableware. Glass tableware is tough and rugged and yet, good looking. It's definitely a profitable proposition for operators. Exactly why is it so profitable? It is stain and alkali resistant; heat resistant, chip resistant, warp resistant; and, it's low in initial and replacement cost. Of the several leaders in the glassware field, operators can select one who will supply him with exactly the product to suit his purposes whether he runs a mass feeding operation or a plush restaurant.

HOSPITAL MANAGEMENT

Vol. 84, September, 1957

* Dry milk. P. Aldrich.—p. 90.

Dry Milk. Processors in the dry milk industry have made great strides in improving their products. Extensive work with dry milk products has shown that there is nothing which fluid milk can do in general food preparation which dry milk cannot do as well or better. Operators using dry milk have discovered these advantages: the milk is easy to store, does not sour, can be kept on hand in the amount necessary for normal uses, and it is easy to use. Dry milk also minimizes heavy lifting and is useful in trimming budgets. In using nonfat dry milk products in baking, it is recommended that the fat removed from the milk during processing be replaced. To do this, add 1¼ oz. fat for each quart of fluid milk required in the recipe. In mixing cream sauces, soups, puddings, and fillings, use 25 to 50 per cent more nonfat dry milk than is usual in reconstituting the product. When using dry whole milk, use 1 lb. 2 oz. with 3¾ qt. water to obtain 1 gal. reconstituted milk. In cooking, whole dry milk is usually combined dry with ingredients before liquid is added. When cooking with either whole or nonfat dry milk, avoid direct heat or high temperatures; don't beat briskly when dissolving the milk; weigh ingredients carefully; and, don't add extra flour to batters and dough even though they may appear to be thinner or stickier in consistency. Test dry milk products for flavor, solubility, and performance before buying large quantities.

HOSPITALS

Vol. 31, August 1, 1957, Pt. I.

* New ways to measure personnel turnover in hospitals. E. Levine and S. Wright.—p. 39.
* Deskless nutrition office. W. M. Ayers.—p. 68.

Vol. 31, August 16, 1957, Pt. II.

* 10 recommendations for feeding tuberculous patients. H. E. Walsh.—p. 68.

Measuring Turnover. The most widely used measure of turnover—the percentage of average number of persons employed terminating their employment during the year—has a weakness when making statistical comparisons of turnover within or between hospitals. For statistical analysis, the appropriate measure is the relative frequency of turnover—the percentage of total employees on the payroll during the year terminating employment. Separate turnover rates for different age groups, classes of personnel, or subdivisions in the hospital disclose important clues about causes of turnover that are masked by a single summary figure. A useful measure of the spread of turnover within the hospital is the instability rate—the percentage of personnel employed at the beginning of the year who terminated their employment during the year. Another measure of instability is the average years of employment of personnel on the payroll during the year. The latter comes closest to what is perhaps the best measure of turnover behavior—the expectancy of service. This is computed with actuarial techniques by tracing the working life of a group of employees from the time they entered service until the day they become a turnover statistic.

Deskless Nutrition Office. By moving out the desk in the nutrition clinic and bringing in a coffee table, comfortable chairs, plants, and pictures, Chicago's Presbyterian - St. Luke's Hospital has achieved a more relaxed, inviting setting for patients who come for dietary instruction. With the desk removed, it is reported that patients are more relaxed and willing to accept instruction. In a homelike atmosphere, the nutritionist can make more effective use of her teaching devices. The reason for the change in patients' attitudes is attributed mainly to the removal of psychologic obstacles—the desk as a symbol of hostile authority, file cabinets, and typical office furnishings which project an impersonal attitude

MASHABANANA!

—say Merry Christmas with a new banana holiday loaf!

Here's a bread so good, your students will love it . . . so pretty, they'll want to make it for gifts! Holiday Quick Bread is easy to make. It keeps moist and holds its flavor. So feature it in your just-before-Christmas lesson, why don't you?

BANANA HOLIDAY QUICK BREAD

1¾ cups sifted flour
2¾ tsp. double-action baking power
½ tsp. salt
⅓ cup shortening
⅔ cup sugar
2 eggs
1 cup mashed bananas* (3 to 4)
½ cup coarsely chopped nuts
¼ cup seedless raisins
1 cup mixed candied fruits and peels
⅓ cup corn sirup, heated

**Use fully ripe bananas . . . yellow peel flecked with brown.*

1. Sift together flour, baking powder and salt.
2. Beat shortening in mixer bowl until creamy consistency. Add sugar and eggs. Continue beating at medium speed 1 minute.
3. Add flour mixture and bananas alternately, blending thoroughly after each addition.
4. Add nuts, raisins and mixed fruits and peels. Beat at low speed for 1 minute. Turn into greased loaf pan (4½"x 8½"x3").
5. Bake in a moderate oven (350° F.), 60 to 70 minutes, or until bread is done. Cool; remove from pan. Glaze with hot corn sirup. Decorate with maraschino cherries and candied fruit, if desired.

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to the patient. The hospital intends to continue using the informal setting as results have demonstrated its superiority over the old, formidable office environment.

Feeding Tuberculous Patients. A dietary survey of forty institutions in California produced ten recommendations for the feeding of tuberculous patients. It was noted that foods high in ascorbic acid should be included in the menu each day and that a simple method should be used to determine the nutritional adequacy of meals served. In meal planning, it was recommended that consideration be given to the food patterns of the cultural groups represented by the patients and that a real effort be made to arrange meal hours to allow for a greater span of time between breakfast, dinner, and supper and to decrease the time span between the evening meal and the next breakfast. It was also said that trays should be neat and attractive and that any excessive food waste on the trays be investigated. Food preparation methods should be reviewed and improved where necessary, with emphasis on producing food of uniformly high quality. Programs for on-the-job training of dietary employees were recommended for all institutions; and, it was suggested the dietary department be administered by one well qualified person having complete responsibility and authority for all phases of operation. In considering patient treatment, it was decided a program of education on the importance of a nutritionally adequate diet and guidance in the selection of food while in the hospital and on the patient's return home were indispensable to the success of treatment in any tubercular patient.

INSTITUTIONS

Vol. 41, September, 1957

* Horsepower and horse sense solve disposal of waste food. A. M. MacFarlane.—p. 6.
* Youth must be served.—p. 8.
* Making refrigeration work for you. C. K. Litman.—p. 22.
* Sanitation for food service workers. T. M. Richardson.—p. 36.
* Training for improved performance. J. A. Ritchey.—p. 56.
* Conserve labor with work simplification. J. H. Morrison.—p. 109.
* How to prepare and serve vegetables. A. M. MacFarlane.—p. 119.
How to purchase fresh vegetables.—p. 124.
How to specify ready-to-cook vegetables.—p. 131.
How to prepare stuffed vegetables.—p. 134.
How to prepare vegetable relishes.—p. 138.

Waste Disposal Systems. Choose waste disposers for performance expected. All waste disposers will take ordinary food waste including cooked bones, and, if wet, paper napkins, newspapers, and cardboard. Avoid feeding a disposer the feet, combs, and entrails of poultry, as well as gristle. Corn husks and other fibrous material cannot be handled by a disposer. It is poor practice to put any metal, chinaware, glassware, and so on, into the disposer. When selecting the machine, be sure the unit does not contribute to the contamination of the potable water supply, and that the particles discharged are of a size that will not cause stoppages. The unit should be of adequate size for the purposes intended, not oversized; the type of waste to be disposed of will determine size. Give careful consideration to the cleaning of the exterior and be sure in the placement of the unit or units that a careful study is made of adequate space, location, plumbing lines, electrical cables, conduits, and controls. All sanitary factors should be taken into consideration in locating the unit: noise, light, ventilation, and so on. For efficient operation of the unit(s), an adequate water supply and drainage system are necessary, as are an adequate electrical supply and sufficient space for efficient installation. Amount of water needed to operate the machine will usually be about 2½ gal. for each pound of food waste devoured per minute. This water supply must be constant and uniform. Waste pipes carrying off the water should be at least 2 in. in diameter. Cost of a disposal operation will depend on the size of the motor, the cost of the cold water carrying off the waste, maintenance, and depreciation. A point-of-origin or a central system may be selected, depending on the preference of the operator. In the point-of-origin system, waste disposers are placed in areas where the waste accumulates. With the central system, a single disposer is located in a strategic and convenient place in the preparation area, and all food waste is brought to it.

Youth Must Be Served. It is many times harder to sell the idea behind goods and services to people once they have become adults. This is the opinion of Aaron Cohen, Research Director of *Seventeen*. His remarks reveal an alarming lack of familiarity on the part of teen-agers with occupational opportunities in food services, hotels, and restaurants. It was recommended that hotels and restaurants begin making plans to capture teen-age interest at the earliest possible time. Vacation trips taken with parents and friends during the summer holidays appear to be an opportune time to interest the teen-ager in foods and hotels—and to leave with him an impression that will follow and direct him during adult years. It was mentioned that although population rates are up, especially in the teen-age bracket, recruitment of teen-agers into the foods field has not gained proportionally. Although more girls than would normally be expected on the basis of past figures are now taking home economics courses, fewer are entering the foods field professionally. The high "young marriage rate" is blamed in part for this, but it was pointed out that early births among teen-age mothers are rising steadily and that business men can continue to look toward an ever expanding young market for their services and products.

Refrigeration. A recent survey revealed that operators using normal temperature equipment for refrigeration have purchased most of this equipment in the last ten years. Figures show that these operators prefer reach-ins, averaging slightly over two cabinets per establishment. Almost all walk-ins were of the built-in type. Equipment of the normal-temperature-type refrigeration appears to be of good quality and up-to-date. Freezing equipment, however, does not fare so well. It would appear that operators are still indecisive about the uses of frozen foods equipment and are buying on the basis of immediate, rather than future need. From a survey of complaints and a general survey of progress in food equipment engineering, it was predicted that future freezers and refrigerators will be planned with prefabrication and preportioning in mind. Designers will build for large quantities of small items rather than small quantities of larger ones. The dominant type of equipment will be the reach-in, and it will be a flexible, versatile piece of equipment that goes far beyond just a few shelves. It will be equipped with accessories best suited to the "in transit" type of refrigeration which will be used for frozen precuts and preportioned foods. Developments, such as irradiation, antibiotic treatment, freeze-dehydration, "stabilization," and other similar processes, will supplement refrigeration, not replace it.

Teaching Sanitation to Food Service Workers. A second lecture for food service workers brings out major points of importance to be observed by workers if control of communicable diseases is to be effective. Workers are told that in eating and drinking establishments, it should be recognized that they may be dealing with "catching" diseases; and, that such diseases may be passed from person to person by either direct or indirect means. Discharges from the nose, throat, eyes, ears, it is pointed out, must be kept off utensils and out of food. Intestinal discharges must also be kept away from equipment and food. The instructor relates that a person may be giving off the bacteria of a communicable disease before any symptoms are evident; and, that disease carriers should be considered as infected persons. Thus, utensils, equipment, foods, and so on, should be protected from spittle droplets from coughing, sneezing, or talking. Because hands provide one of the most common methods for the transmission of bacteria from place to place, fingers must be kept out of or off the business parts of utensils, equipment, and food. Workers are also instructed to wash hands thoroughly after each toilet visit, following each handling of customer-soiled utensils, after coughing or sneezing

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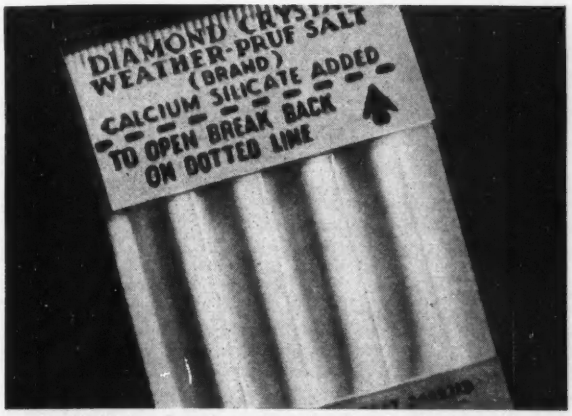

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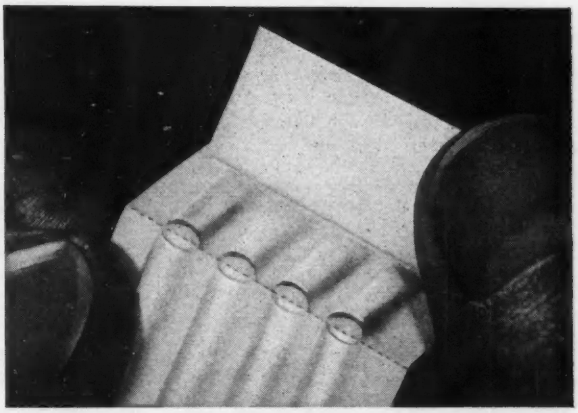

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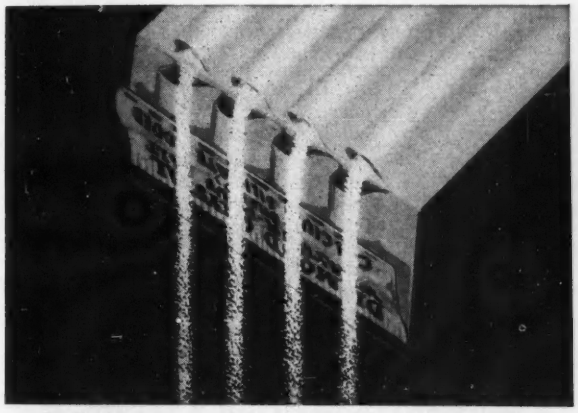

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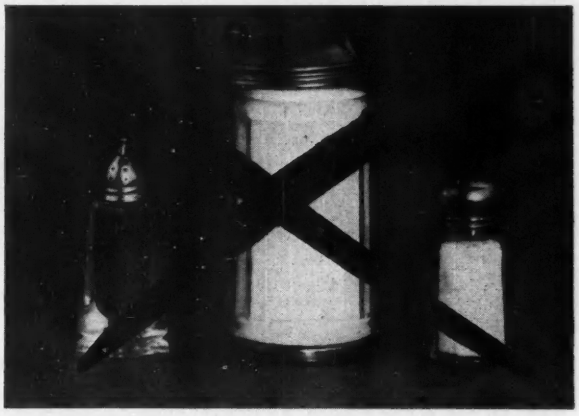

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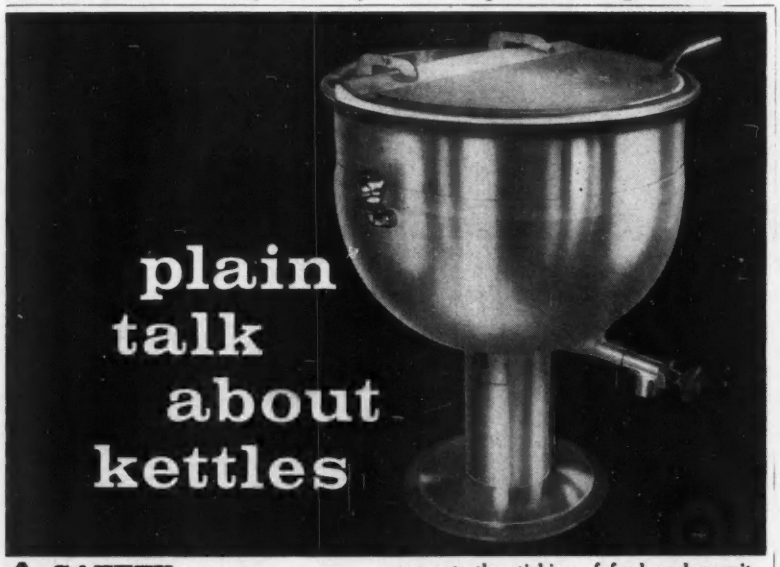
and smoking, or after any contact with soil. They are instructed to keep their hands out of their mouths. Slides further developing the communicable disease theme were shown with the second lecture. These covered the various ways germs travel, means of eliminating channels of infection, and proper handling and service of food.

Training for Performance. A five-step training program aimed at getting the greatest possible good work from, and satisfaction for, the employee is described. The author suggests that for the benefit of everyone involved, the human feelings of the employee, his pride, dignity, and ego should be involved in his job. If they are not, the employer is getting only a partial performance from him. Five procedures taken to insure the participation of "the whole employee" in the organization are enumerated. (a) Take time to insure that the new worker is properly introduced. (b) Train the worker thoroughly in the specific skills required on his job. (c) Achieve a complete understanding with the new employee as to exactly what his job is, what his responsibilities are, and what authority he possesses. (d) At some later date, make a private appraisal with the employee of his work. (e) Exhibit a sincere and deep interest in the worker as an individual and as an essential part of the organization.



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Simplify Work and Save Labor. The steps in work simplification are: (a) break down the job, listing all details as done by the present method; (b) question every detail; (c) develop the new methods; and (d) apply the new methods by selling the proposal to the boss. Tools to help in breaking down the job are the process chart and the flow chart. The process chart follows the movements of a man, a part, material, or a piece of paper. To use this tool effectively you must: (a) determine the activity to be studied and be sure it is a specific job; (b) decide where you will start and where you will stop; (c) write a brief description of each detail; (d) use symbols to denote operation movements, transportation, storage, and inspection; (e) beside each activity, enter how long it takes or how far the distance traveled; (f) enter any information that will have any bearing on the analysis of the job or operation; and (g) summarize the total number of operations, storages, transportations, times and distances in the summary line. In using the flow diagram (which shows where activities take place) include these steps: (a) sketch a layout of the working area; (b) trace the flow of work; (c) apply the symbols; and (d) add distance to the flow line by entering the approximate distances involved adjacent to the symbols indicating transportation. When the improved method has been process-charted and flow-diagramed, the whole proposal must be written up.

Serving Fresh Vegetables. Fresh vegetables can step up volume. The public, aware of their nutritional value, is ready to eat fresh vegetables that have been selected and prepared with care. The factors which have moved fresh vegetables from the occasional into the regular supply are the result of modern methods of production, handling, grading, and packing, combined with improved transportation facilities. Any distant market may now buy fresh vegetables, and operators are wise who take advantage of their inherent menu appeal. To make the most of vegetables be sure that they are presented properly. Choose them for contrast in color, flavor, form, and texture. Avoid too many of the same color, and do not feature two strong-flavored vegetables on the same menu, or two that belong to the same family. Choose vegetables to "go with" the entrées selected. While keeping ease of production in mind, vary the form of the vegetables on the menu as well as the style of preparation and make it a point not to list two vegetables that have the same shape or form, such as sliced, julienned, diced, and so on. Feature local or seasonal vegetables frequently while they are available, as repetition is then welcome. Be sure the wording on the menu is such that it will do a good job of influencing sales. Use descriptive terms as silent

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salesmen, i.e., *fluffy, baked Idaho* potato, *blue lake* green beans, *buttered fresh* broccoli, *new* cauliflower *with cheese sauce.*

Purchasing Fresh Vegetables. What to watch, and what to watch out for in purchasing vegetables are discussed in this article. It is suggested that the buyer purchase quality vegetables that will best suit the particular purpose for which they are to be used. Vegetables should be bought when they are most plentiful and prices lowest, and should be bought in amounts that can either be used advantageously or profitably stored. It is warned that "bargain" vegetables may often carry a lot of waste. When buying "bargains," be sure to distinguish between damage that will detract from the appearance and eating pleasure and damage that will involve time, labor, and waste in the preparation. Buy on specification and buy by weight, if at all possible. Make net yield tests frequently, and whenever practicable go in person to the market to compare prices of similar vegetables and grades from at least two vendors before placing the order. Keep informed of the availability of the vegetables on the market through the periodic reports of the U.S.D.A.'s Agricultural Marketing Service, radio, television, and newspapers. It is recommended that the buyer subscribe to a producers' current list, which will include vegetable carlot loading information as well as vegetable track holdings, unloads, diversions, and carload amounts of vegetables in storage. This article lists over twenty vegetables and gives their individual buying specifications.

Specifying Ready-to-Cook Vegetables. Many factors influence the quality of frozen vegetables, such as the variety, storage temperature, humidity, and product changes during freezing. Frozen vegetables deteriorate rapidly at too high a temperature; 0° F. is a satisfactory temperature for most, but corn, snap beans, and mushrooms should be kept at –5° F. or lower. With the exception of corn-on-the-cob, it is unnecessary to defrost vegetables before cooking. Vegetables left in unopened packages will definitely spoil in 12 hr. at 90° F. and 24 hr. at 70° F. To cook frozen vegetables properly, use one-half to one-third of the cooking time normally used for fresh vegetables. Many frozen vegetables have three Federal grades which can be used by the buyer to designate quality. All are subject to U. S. Standards of grades for frozen vegetables. The U. S. Standards for grades of canned vegetables are also well established: all canned vegetables should be bought by definite specifications, including grade, size, style, type or variety, production area, and drained weight. In preparation, care should be taken to season canned products skillfully and they should be served to complement each other in flavor. Dehydrated onions and potatoes are the dried vegetables in most common use. One lb. dried, sliced onions equals 10 lb. raw prepared onions. One No. 10 can of dried mashed potatoes makes 4 gal. mashed potatoes. Commercially prepeeled potatoes have a limited storage life. They must be refrigerated at all times and cannot be safely stored longer than seven days.

Stuffed Vegetables. Recipes that give glamour to vegetables and increase profits as well as numbers of satisfied customers are given here. They include stuffed artichokes, stuffed green peppers, stuffed onions, stuffed acorn squash, stuffed zucchini, stuffed mushrooms, stuffed baked white potatoes, stuffed baked sweet potato, stuffed cabbage Swedish style, and stuffed yellow squash. Complete directions for preparing and cooking these featured items are included.

Vegetable Relishes. For variety and color, table relishes, the relish cart, hot vegetable relishes, and marinated fresh vegetable relishes add to the attractiveness of dining out and serve as an appetizing advance to the main meal. To insure their appeal to the patron, be sure the relishes are cut with sharp knives from select, choice-looking produce. Chill thoroughly and arrange trays for maximum color and shape contrast. Ways to treat carrots, celery, broccoli, cauliflower, radishes, mushrooms, tomatoes, and canned vegetables are given.

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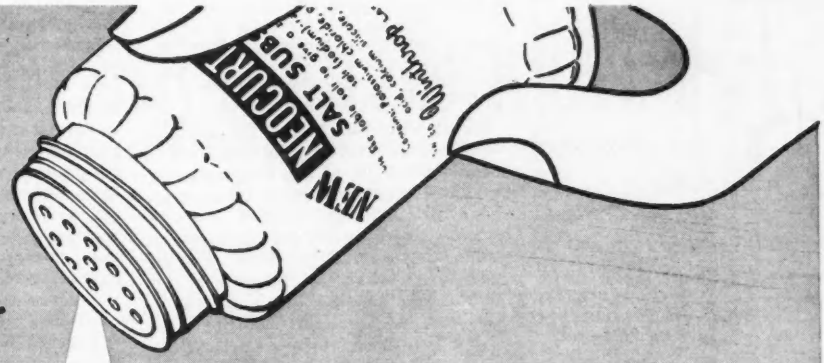

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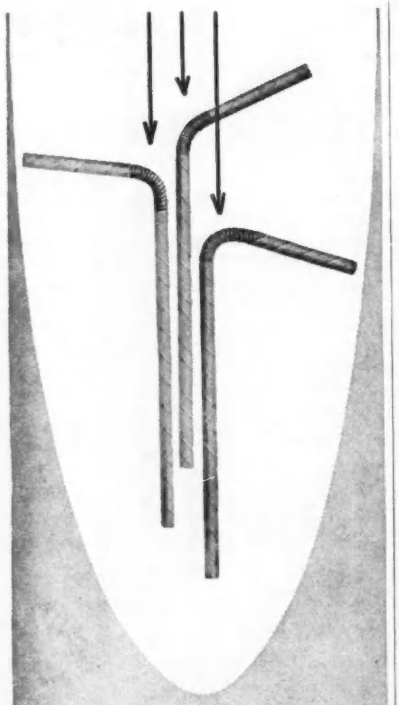

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THE MODERN HOSPITAL

Vol. 89, September, 1957

* Equal pay for equal jobs is a good rule. J. H. Holmgren.—p. 90.
* How administrative dietitians get that way. D. Bartlett.—p. 110.
* Peach dishes persuade patients to eat. I. L. Dolan.—p. 116.

Equal Pay for Equal Jobs. Comparable wages for comparable jobs is a basic principle of job evaluation in personnel administration. Not only should this principle be used as a criterion in checking internal consistency within the hospital, it should also be used to see that the hospital is not "out of line" with other hospitals in the area. To pay lower salaries is to lose competitive status, particularly in a community where there is a shortage of hospital personnel. To assist in determining hospital salary rates, a community survey is made of wages and salaries, following the establishment of job descriptions. Actual payroll salaries paid in each job classification are checked. Salary ranges, hours of work, and final median salary rates are entered on survey sheets to use in developing the plan for hospital salary rates. Information is also obtained on rates paid for part-time workers, and also on shift differentials and fringe benefits. If necessary, check local factories and firms, employment agencies, and medical and public health agencies to obtain sufficient additional data for rate comparison. The objective of the survey is to discover minimum hiring rates, average earned rates, and comparisons of additions to income involving shift differentials and similar "extras."

How to Become an Administrative Dietitian. The dietitian is qualified by education, specialized training, and experience to undertake positions of responsibility. In becoming an administrative dietitian, the author says that experience is of crucial importance. She recommends that the young dietitian who has just completed her internship take a position as an assistant dietitian in a fairly large, well organized dietary department. Here she can feel more sure of her abilities than if she stepped at once into a more trying, administrative position. After spending a year in such a position, the young dietitian is at a better point in her career to view her prospects. If she discovers she has a liking or distinct ability for administrative and executive work, her best move would be to a job of more responsibility perhaps as the supervisor of a larger unit in her department or as the head of a department at a smaller hospital. The author believes that administrative experience is improved by seeking employment in the smaller hospitals, where every dietitian, regardless of her specific assignment, is fully exposed to the responsibilities of the department head. After experience is obtained in the smaller hospital, the dietitian may move up in the smaller organization, perhaps even to the top as department head, or she may return after a time to a larger hospital as administrative assistant to the department head, or she may become the head in the larger organization. The point is that the eagerness of the young dietitian with administrative ability cannot usually be rewarded with a top job before she has had experience. Too often the handling of such responsibilities by a dietitian who has had the education and training but not the experience necessary leads to disaster. Experience develops executive ability which cannot be matured in much less than five years' time and learning in lesser positions.

Peaches Raise Patient Morale. Because they are so eye appealing and popular, peaches can raise the morale of patients. Canned clings can be purchased in cans sized to fit any hospital's need. Careful grading reassures the institutional buyer as to exactly what he is getting, and rigid quality control assures good tasting as well as dependably firm and shapely fruit. Select from Fancy, Choice, Standard, or Pie and Solid Pack Pie grades. Select syrups for extra heavy juice or light juice. Peaches are also packed in water alone or peach juice alone.

NATIONAL RESTAURANT NEWS

Vol. 1, August, 1957

* Ruffley speaking on food and equipment. J. J. Ruffley.—p. 10.
* Research report: test of non-metallic cafeteria trays. P. P. Logan.—p. 14.

Deep-Fat Frying. Mr. Ruffley interviews the head of the restaurant research department of a large company on how to use deep-fat frying effectively. Advantages of using deep-fried foods are numerous: the foods require little advance preparation; cooking is rapid (from 1 to 7 min.); no waste or leftovers are produced; and, deep-fried foods are low food cost items. For best frying results, modern fry kettles should be used. These come in different sizes and types to fit any food service operation. Fats should be selected for good color, long frying life, low absorption, and the ability to produce an appetizing, golden brown and non-greasy surface. A good frying fat should not smoke, even after continued use and should be resistant to gumming, rancidity, and food flavors. Proper preparation of foods will aid in getting desired results. Foods should be free of excessive crumbs and moisture. Proper breading or batter should also be used. Similar size food pieces should be fried at the same time to serve uniformly finished servings; and the foods should be served immediately after frying when they are at their flavor peak. When using the new, fast-recovery kettles, lower frying temperatures should be used; or, fry larger quantities at the usual high temperature. Time and temperature vary with size of food pieces and amounts being fried; large pieces re-

INSIDE SCIENCE

NEW EDITION

The Vital Story of MILLED WHITE RICE

Enriched with Vitamins and Iron for Better Health

by Science Writer

A second "Battle of Bataan" in the Philippines has proven beyond all doubt the value of vitamin enrichment to consumers of white rice.

The famous Bataan experiment in 1948-1950 proved conclusively that whole populations can benefit from enrichment of white rice with vitamins and iron, that disease and death caused by dietary deficiencies can be overcome, that enrichment is a key to better health among infants, children and adults.

What Happened at the Second "Battle of Bataan"

Before the start of the Bataan trial, these facts were evident:

- Polished white rice is the principal food of millions throughout the world. Good food though it is, it lacks several of the key nutrients occurring in the brown rice from which it is milled, and beriberi is often common where white rice is the main food.
- In the Philippines, beriberi was common and mortality from it high.
- Beriberi is caused by insufficient vitamin B_1 in the diet. It yields when vitamin B_1 is given to its victims. It does not occur when human beings receive enough of this vitamin in their diet.
- To prevent beriberi where white rice is the the main food, vitamin B_1 must be added to the diet, either by itself or in food such as rice.

- For centuries it has been universal practice to rinse rice before cooking, hence vitamin B_1 (and any other water-soluble nutrient factor) should be added in such a way that it will not dissolve out.
- Through a process developed in the laboratories of Hoffmann-La Roche, it is possible to enrich white rice with water-soluble vitamins and iron so they will not wash off during this rinsing prior to cooking.

With these facts known, the second "Battle of Bataan" began. Through the cooperation of Philippine public agencies, the Williams-Waterman Fund, the USPHS, and Hoffmann-La Roche a controlled experiment was set up in the province of Bataan. More than 12,000 medical examinations were made, before the enrichment of rice began. Nearly 13% of those examined had beriberi.

Enriched white rice was then put into commerce in the experimental area, but not in the control area.

What happened? *Within two years beriberi was practically wiped out in the experimental zone!* . . . beriberi mortality dropped almost to zero . . . almost 90% who had symptoms of the disease before enrichment's start were free from signs of the disease or were greatly improved . . . thousands of people were helped to better health. News of the success of enrichment reached people in the control area and caused them to demand that their rice be enriched, too.

Other Countries Follow Suit

Word of the excellent results of the Bataan experiment fanned out throughout the world. The largest rice miller in Thailand marketed enriched white rice with success in 1951. In that year, also, the Puerto Rican government enacted legislation requiring that all white rice sold there be enriched, beginning early in 1952. Since then, enriched rice has been made available to the public in Cuba, Venezuela, Colombia, The Dominican Republic, Taiwan (Formosa), Singapore, and Australia.

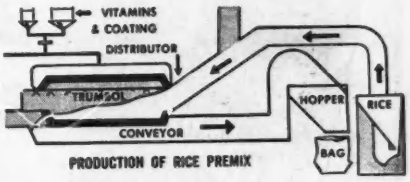
South Carolina Adopts Rice Enrichment

South Carolina, a state having very high per-capita white rice consumption, passed a law in the spring of 1956 requiring that all white rice sold within the state after July 1 be enriched with vitamin B_1 (thiamine), niacin, and iron, and it is hoped to include riboflavin (vitamin B_2) at a later date. South Carolina is the first state in the USA to enact rice enrichment legislation; it has required enrichment of white flour and corn meal since 1942 and 1943 respectively.

How is White Rice Enriched?

The enriching method in widest use throughout the world employs a method developed in the laboratories of Hoffmann-La Roche Inc., pioneers in the research and production of vitamins.

The Roche method impregnates rice grains with thiamine, niacin, riboflavin if desired, and iron and adds a final, outer coating of edible material to protect the vitamins against deterioration and preliminary washing and rinsing. For economy large amounts of vitamins are applied to small amounts of rice to make a "premix" and one pound of this "premix" is then mixed with a larger quantity (usually 199 lbs.) of ordinary milled white rice at the rice mill. As required in Philippine and Puerto Rican legislation, U. S. Federal Specification N-R-351C and South Carolina regulations for bulk (bags of 50 or more pounds) white rice, each pound of this nutritionally-improved rice provides not less than 2.0 mg. of thiamine, 16 mg. of niacin, and 13 mg. of iron and 85% of these levels are assuredly present after a prescribed rinsing test. In some countries, riboflavin also is included.



PRODUCTION OF RICE PREMIX

Other methods of enriching are permitted by the South Carolina statute. Small amounts of rice packaged for retail sale may have the vitamins and iron present as a powder which clings to the individual rice grains, or a liquid spray can be used. These packages must be labeled: "Do not rinse before or drain after cooking."

The Federal Food and Drug Administration in December of 1956 published proposed definitions and standards of identity for enriched rice. These standards, currently under discussion, provide for vitamin levels along the lines of Puerto Rican and South Carolina requirements.

What of the Future?

The trend to nutritionally-improved foods for better health is definite. The United States, a world-leader in the enrichment of white flour, white bread, corn meal and grits, farina, pastina, macaroni products, and breakfast cereals is now recognizing the need to enrich milled white rice. *When good foods are made better, everyone benefits.*

This article is part of series on the enrichment of processed cereal grain foods which are enriched for better nutrition. It is published by the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. An illustrated brochure containing the text of all articles in the series is available at your request without charge.

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quire longer frying times at lower temperatures. Fats should be replaced when undesirable flavors are noticed or when foaming develops. To have as efficient an operation as possible, use kettles as much as possible and keep the turnover at a maximum rate.

Non-Metallic Cafeteria Trays. With view to determining the causes of breakdown and to measure the comparative durability of various nonmetallic substances used for tray construction, tests were made by a research committee. Fifteen tests, including water immersion, boiling water, accelerated washing, shattering, acid and alkali, distortion, bending, and deflection, were made on trays submitted by manufacturers and coded for the scientific tests. Results showed that the life of a cafeteria tray depends on its resistance to damage by water, steam, friction, acids and alkali; and to its susceptibility to chipping, surface checking, warping, separation of laminations, or breakage. It is suggested that failures could be substantially reduced by greater care in loading and unloading wash racks and in stacking trays. It was also noted that design and construction of side walls have an important bearing on resistance to friction, chipping, and corner-shattering. Laminated material is less resistant than solid material to damage by repeated washing.

WHAT'S NEW IN HOME ECONOMICS

Vol. 21, September, 1957

* But fats do belong in the everyday diet.—p. 62.

Vol. 21, October, 1957

* How to choose vegetables and why.—p. 74.

Fats in the Everyday Diet. Outstanding medical and nutrition authorities have expressed the opinion that the elements of good nutrition are still the sound basis for everyday nutritional practices. In the normal diet, the inclusion of good quality, well marbled meats; of the new, well trimmed, leaner pork; of crisp bacon; of the glandular meats; of eggs, poultry, and fish; and of all dairy products as well as vegetable oils, shortening, and lard in reasonable amounts is still sound. The contribution made by these foods in protein, vitamins, and fatty acids is vitally important. The recommended intake of 25 to 35 per cent of total daily calories may be carried out without sacrifice of nutritional value or eating quality of the daily diet.

Choosing Vegetables. This article describes the best quality vegetables, —from asparagus to zucchini. The criteria for selecting high-quality root, leaf, flower, and seed vegetables, as well as dried vegetables, are also given. The article remarks that basic to any choice is consideration of which form at any given time gives best value for the money spent, in addition to serving the purpose for which it is intended.

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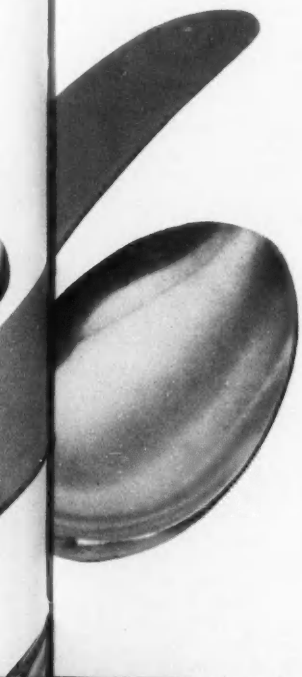

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You can serve these Heinz dishes with practically no work or labor costs. You end the leftover problem. You save cooking fuel. You free your cooking equipment for higher-priced dishes. And you control your costs so you know exactly what you make on every portion!

IT'S NO TROUBLE TO TRY. It won't take you five minutes of work to open, heat and serve these Heinz Hot Plate Lunches to 6 customers. Give them a try, and let the results decide for you. Fill in and mail the coupon for your free Heinz Hot Plate Lunches now.

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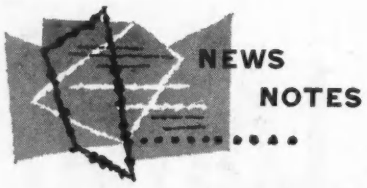
City _____ Zone ____ State _____



New Sodium-Restricted Diet Booklets. Three new sodium-restricted diet booklets published by the American Heart Association are available to individual patients through state and local affiliates of the Association if accompanied by a doctor's request. The American Heart Association's Nutrition Committee determined levels of sodium for the diets to be 500 mg. and 1000 mg., plus a mild sodium restriction. These diets are designed principally for non-hospitalized, adult cardiac patients for whom sodium restriction is prescribed.

Common to all three booklets is basic information pertinent to a clear understanding of the principles of sodium restriction, and detailed instruction to assist patients in carrying out the prescribed diet correctly. Organizations that co-sponsored the preparation of the booklets are: American Heart Association, The American Dietetic Association, Council on Food and Nutrition of American Medical Association, Nutrition Foundation, and U.S. Public Health Service.

Communications Workshop. One of the first four workshops on communications sponsored by the National Project on Agricultural Communications was held at Oregon State College, Corvallis, last June. Mary Collopy, formerly the radio and TV home economist at Michigan State University, and Bill McGrath, Speech Department, Oregon State College, planned and directed the two-week program. Dr. Miriam School, Dean of Home Economics at the college, was the coordinator and administrator. Many resource people helped and contributed particularly in the areas of education, speech, visual aids, writing, radio, and television. Enrollment was limited to thirty home economists from various fields.

Concepts and principles of communication were emphasized. Among the points made were: (a) Communications may be defined as reciprocal innervation or mutual give-and-take; it is more than a media for "carrying" information since it involves sending, receiving, and interpreting. (b) It is based upon common experiences; such experiences promote mutual understanding and lead to cooperation rather than forced obedience. (c) Understand your own views and how you arrived at them. (d) Be aware of how your words and actions appear to others. (e) Avoid "denying" another's viewpoint; try to understand it. (f) Be sure to let others know what is going on. Group activity depends on communication.

Opportunity was provided, too, for practicing the use of various media through small group projects which were developed and presented to the rest of the workshop members. Media used included radio and television skits and programs; publicity campaigns using emblems, posters, and news material; and demonstrations.

An excellent reference booklet for the further study of the implications of good and poor communications is *Communicating with Employees: Importance of Oral Communications; The Worker's Viewpoint; A Survey.* This is No. 129 of Studies in Personnel Policy, published by The National Conference Board, Inc., 247 Park Avenue, New York 17 ($1.50 a copy).

Contributed by Virginia Harger, Associate Professor in Home Economics, The Ohio State University, Columbus.

Assignment, New Zealand. E. Evelyn Smith, recently retired as Chairman of the Division of Institution Management, University of Illinois, has received a Fulbright Research Grant to New Zealand. In her new assignment, Miss Smith will help to set up a curriculum and internship that will include administrative as well as therapeutic aspects of dietetics. Her headquarters will be at the University of Otago in Dunedin.

Following is a list of foods expected to be in plentiful supply during November, according to the Agricultural Marketing Service, U.S.D.A.:

Protein foods

Almonds and filberts
Chickens, broilers and fryers
Pork
Turkeys

Other foods

Apples
Cranberries
Grape juice
Jam and jelly
Peanut butter
Pears, winter
Peas—dry, canned, and frozen
Plums, canned purple
Potatoes

American Association for Maternal and Infant Health. This new association, inaugurated July 10, was formerly the American Committee on Maternal Welfare. The purpose of the change is to point up the development of maternity care from strictly a medical problem to that of a complex professional service involving many specialties other than medicine, including that of the nurse, nutritionist, hospital administrator, social worker, nurse anesthetist, and a host of other workers. Mary Reeves, Nutrition Consultant for Region V of the U.S. Children's Bureau in Chicago, has been elected a Director-at-Large of the Association. For the past three years Miss Reeves has acted as official representative of The American Dietetic Association to the Committee. Miss Reeves urges members of A.D.A. to become active members of the new Association.

Changes for Army Medical Specialist Corps. President Eisenhower's signature on amendments to the Army-Navy Nurses Act of 1947 will effect the greatest changes in grade structure, promotion, and the retirement of Regular Army members of the Army Nurse Corps and the Army Medical Specialist Corps since the original law was passed. For the first time in the fifty-six-year of the nurses and the ten years of the dietitians, physical therapists, and occupational therapists, each group will be on a basis for organizational and similar procedures parallel to that of all Regular Army officers. Now all captains with fourteen years of service and fully qualified for promotion, can anticipate advancement to the grade of major, regardless of the number already in that rank. Additional expansion has also been made in the highest grades. The medical specialists will have one colonel and twenty lieutenant colonels. Integration of the changes will be accomplished as soon as possible.

U.S.D.A. Consumption Survey. *Food Consumption and Dietary Levels of Households in the United States* is a follow-up to Reports 1 to 10 of the Household Consumption Survey, 1955. Where the previous reports consist largely of statistical tables, this publication presents interpretations by staff members of the Household Economic Research Division, Institute of Home Economics, Agricultural Research Service of some of the survey findings in Reports 1 to 10.

Housekeeping families of two or more persons in the U.S. spent an average of $28.50 for food in one week, according to the survey. With the number in the family averaging 3.6 persons, food for a day had a value of $1.25 per person. The general picture is one of abundant family food supplies, but the averages conceal the great variation in family food practices. Factors such as food dislikes, home production and preservation practices of rural families, different degrees of knowledge about nutrition requirements and food composition make family-to-family variability difficult to measure and predict. On the other hand, when families are grouped by their income or household size or their place of residence, it is possible to detect some systematic variation in food consumption.

In addition to an analysis based on the above information, the report also contains observations on dietary levels of families and fat consumption in family diets. Twenty-one charts summarizing various phases of the study are included in the report and are available separately. Single copies

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PREMIUM SALTINE CRACKERS*
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Your customers will appreciate these finer saltine crackers. They're tastier, flakier and snapping crisp. These top-quality crackers are always perfect in our moistureproof cellophane packets.

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of the report may be obtained free from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

Revised Restaurant Booklet. *Establishing and Operating a Restaurant* has been revised by the Department of Commerce. The booklet is one of a series originally prepared at the request of the Department of Defense, and used during the demobilization period following World War II to train members of the Armed Forces who were interested in establishing a service or retail business. During the past ten years it has been available to the general public and has helped many people to determine whether they were qualified to engage successfully in a business of their own, and if they were in business already, to check their present operations and improve their current practices. The revision was prepared by Carl M. Schaffer, Special Consultant, under the direction of I. Q. Lord of the Office of Distribution, and with the cooperation and technical assistance of the National Restaurant Association. Copies may be ordered from the Government Printing Office, Washington 25, for 70 cents each.

School Lunch Recipes. The second in a series of supplements to the School Lunch Recipe Card File has been developed. Twenty-six recipe cards, 5 by 8 in., containing 46 recipes and variations of basic recipes, are included to help school lunch managers plan, prepare, and serve meals meeting the Type A lunch requirements of the National School Lunch Program. The basic card file was published two years ago; this year's additions include recipes for eight of the ten sections: Breads and Cereal Products, Fruits and Other Desserts, Main Dishes, Salads, Sandwiches, Sauces and Gravies, Soups, and Vegetables. Each recipe lists quantities for making 100 servings, and a blank column is provided for managers to record the quantities of ingredients needed to prepare their required number of portions.

Copies of the new supplement (Supplement No. 2 to PA-271 "Recipes—Type A School Lunches") have been shipped to state educational agencies for free distribution to schools taking part in the National School Lunch Program. They may be purchased from the Government Printing Office, Washington 25, at 30 cents a set. The complete set of cards published to date (PA-271 and Supplements No. 1 and No. 2) are available at a total cost of $2.85 a set.

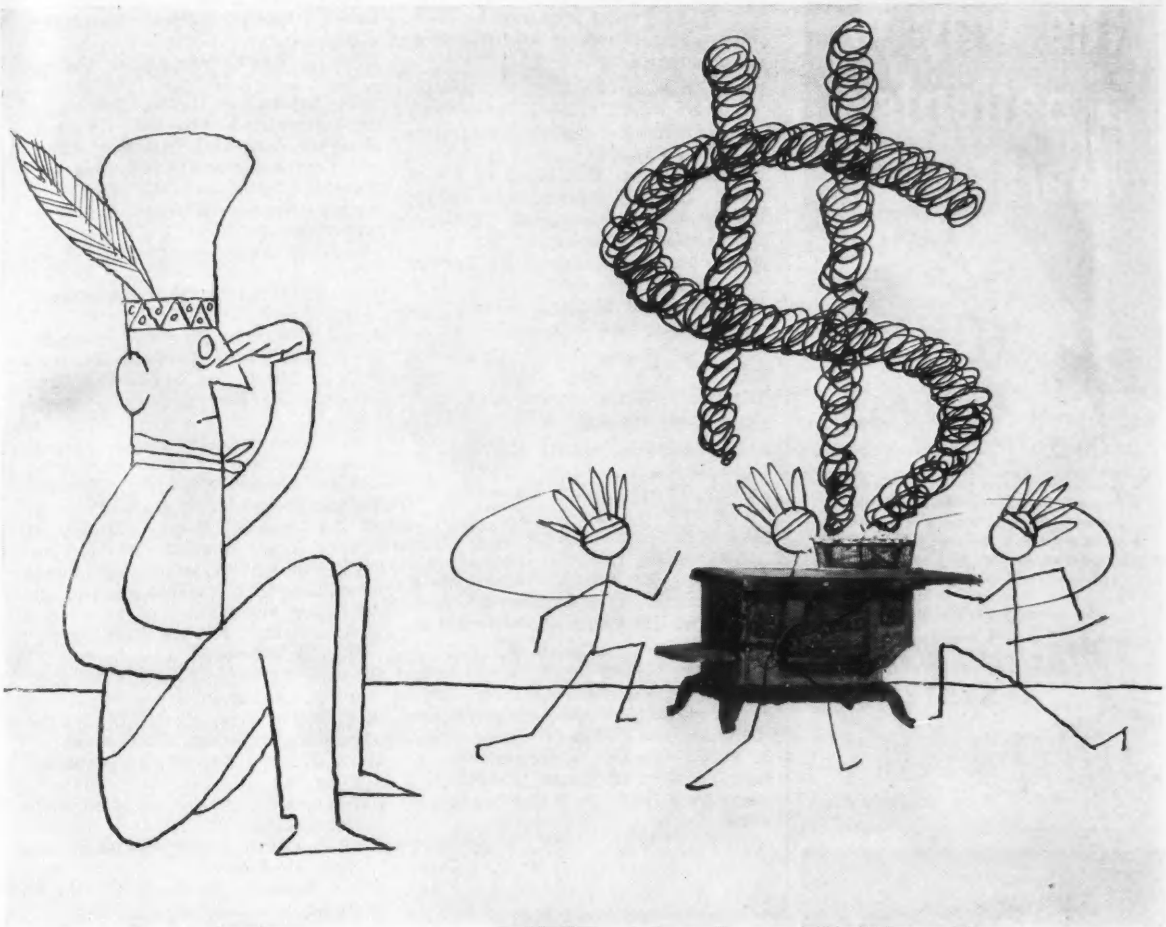
New Headquarters for Restaurant Association. The National Restaurant Association has purchased the building at 1530 Lake Shore Drive, Chicago, for the headquarters offices. The headquarters staff will occupy the building some time this fall.

Nominations, 1958 American Institute of Nutrition Awards. Nominations are invited for the 1958 Borden Award in Nutrition and the 1958 Osborne and Mendel Award for Research in Nutrition. Nominations may be made by anyone and must be sumitted by January 1, 1958, to the Chairman of the appropriate nominating committee. Membership in the American Institute of Nutrition is not a requirement for eligibility and there is no limitation as to age. For full details as to the procedure for nomination, see the September and October issues of the *Journal of Nutrition.*

Institute, Army Medical Specialist Corps. In October, the sixth Semiannual Institute for Officers of the Army Medical Specialist Corps was held at Walter Reed Army Institute of Research. Lt. Col. Helen M. Davis, Chief, Dietitian Section, AMSC, was Projects Officer in charge of the Institute; associated with her for the project was Maj. Ida Strickland, dietitian, Walter Reed Hospital. A previously studied theme, interpersonal relations, was continued under the guidance of Gordon L. Lippitt and Robert C. Vandivier of the National Training Laboratories, National Education Association. Representatives from the Office of The Surgeon General of the Army addressed the Institute on Army Medical Service policies and procedures. As a conclusion to the week's program, each AMSC section chief held a conference of her respective colleagues for discussion of matters concerning their specialities.

Food Service Course at Michigan State. Again this coming year, the Michigan Hospital Association will sponsor its successful Food Service Supervisors' Course at Michigan State University, East Lansing. The course will cover a ten-week period, commencing February 3 and running through April 3, with a final week in October to review experience acquired during the interim months. Purpose of the course is to assist hospitals, particularly those of small and moderate size, which are suffering from the general shortage of dietitians. Employees who enroll for the course will receive instruction in managerial skills and the production and service of food to help them achieve greater competency. Students in previous years have come from Kentucky, Ohio, Illinois, and Wisconsin, as well as Michigan. The course is presented by the College of Home Economics, Continuing Education Service, Michigan State University; co-sponsors are the Michigan Hospital Association, Michigan Dietetic Association, American Hospital Association, and The American Dietetic Association.

Interns Graduate. On September 7, six dietetic interns at *Henry Ford Hospital,* Detroit, completed their year's course. Dr. James T. Howell, Assistant Director of the Henry Ford



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So switch to Heavy-Duty MFB—the all-purpose, all-hydrogenated vegetable shortening that fries like a dream. Heavy-Duty MFB stands up under heaviest frying conditions . . . is perfectly bland in taste . . . resists breakdown and rancidity . . . is excellent for baking too.

New Zip-Open Re-Sealable Carton

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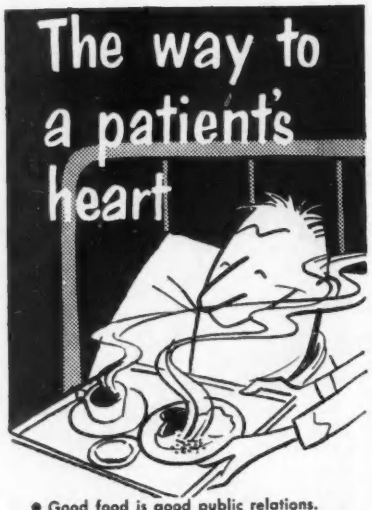

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★ *Easy to use and store—no spoilage—no squeezing*
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made from a base of pure, dehydrated citrus fruit juices with fruit components added to enhance flavor and body—are available in lemon-lime and orange.

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Hospital, addressed the group. Pins and diplomas were presented by Margaret King, Director of Dietetics. The graduates are:

Mary Elizabeth Danaher, St. Joseph College, West Hartford, Connecticut
Solange Grenier, Laval University, Quebec, Canada
Martha Herman, College of St. Elizabeth, Convent Station, New Jersey
Josephine Lu, Nazareth College, Louisville, Kentucky
Bonnie Murrey, College of St. Teresa, Winona, Minnesota
Audrey Smith, Michigan State Uni-University, East Lansing

At the *University of California Medical Center,* San Francisco, the following dietetic interns also completed their training in September:

Ann Dietzen, University of Washington, Seattle
Shirley Thomas Hall, University of Cincinnati
Sara Hill, Colorado A. & M. College, Fort Collins
Juno-Ann Krohn, Michigan State University, East Lansing
Alice Toy, University of California at Berkeley

On September 12, twenty-two dietetic interns received their certificates at the *Veterans Administration Hospital,* Hines, Illinois. Dr. Edmond S. Foley, Chicago, addressed the interns on "The Physician Looks at the Role of the Dietitian." The graduates were:

Muriel Beardsley, Walla Walla College, College Place, Washington
Myra L. Cameron, Our Lady of the Lake College, San Antonio
Sheila A. Conlin, St. Mary's College, Notre Dame, Indiana
Rita Dries, Oklahoma A. & M. College, Stillwater
Jeanne Dunagan, State University of Iowa, Iowa City
Janice Eddy, Stout State College, Menomonie, Wisconsin
Betty J. Elzey, Woman's College of the University of North Carolina, Greensboro
Edna Forester, Woman's College of the University of North Carolina, Greensboro
Shirley Hauth, Iowa State College, Ames
Anna House, University of Alabama, University
Beverly Johnson, Iowa State College, Ames
Eleanor Layman, Virginia Polytechnic Institute, Blacksburg
Janice Mahaney, Virginia Polytechnic Institute, Blacksburg
Lizzie McNair, Tuskegee Institute, Tuskegee, Alabama
LaVerna Moore, Rosary College, River Forest, Illinois
Idola Newberry, Alabama Polytechnic Institute, Auburn
Eloise Pitts, University of Louisville, Louisville, Kentucky
Mary June Smallwood, University of Tennessee, Knoxville
Grace Takes, Marycrest College, Davenport, Iowa
Louise Tyler, Indiana University, Bloomington
Etna J. White, Iowa State College, Ames

On September 13, six dietetic interns completed their year's work at *Tuskegee Institute,* Tuskegee, Alabama. Certificates and A.D.A. pins were presented by Delores M. Daugherty, Acting Director of Dietetics, to the following:

Hattye G. Anderson, Tuskegee Institute
John T. Davis, Prairie View University, Prairie View, Texas
Alma B. Hunter, Tuskegee Institute
Blicksy V. Lamb, Tuskegee Institute
A. Joyce Mooty, Clark College, Atlanta
Florence H. Murphy, Tuskegee Institute

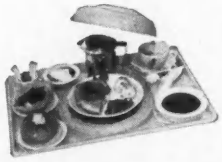
In September, nine dietetic interns were graduated from *Brooke Army Medical Center,* Fort Sam Houston, Texas. The ceremony marked the end of the dietetic intern program at Brooke Army Hospital, where, since 1943, two hundred college graduates have taken their internships. The new dietitians include:

Miriam Betzer, Florida State University, Tallahassee
Barbara Brown, University of Kentucky, Lexington
Ann Curtis, Pennsylvania State University, University Park
Doris Durey, University of Tennessee, Knoxville
Sara Duvall, University of Mississippi, University
Aida Guerrero, University of Puerto Rico, Rio Piedras
Alice Kelson, University of Maine, Orono
Beverly Lutz, Memphis (Tenn.) State College
Patricia Pramik, University of Akron

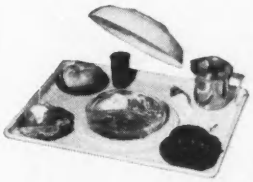
News of State Associations

Hawaii Dietetic Association. The following officers will serve the Hawaii Dietetic Association in 1957-58: President, Mrs. Juliet Tong; President-Elect, Mrs. Kimiko Higa; Secretary, Flora Lum; and Treasurer, Mrs. Yoko Yamauchi. The officers were installed at the annual dinner meeting held September 19 at the Reef Hotel in Waikiki. Speaker of the evening was Marge Piper of Models Hawaii. The topic, "Keep Your Eye on Beauty," emphasized the importance of good grooming for today's modern women.

Michigan Dietetic Association. Members of the *Detroit Dietetic Association* held their September meeting at Harper Hospital where Jacques Cousins, Executive Director, Greater Detroit Area Hospital Council, Inc., spoke on the work of the Council. The October meeting, held at Bon Secours Hospital was "Carribean Cruise" presented by Magdalina Motoiu. The fol-



Using Mealpack compartmented China Dish (available plain white or decorated).



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- Keeps entree HOT (130-135° F) for over ONE HOUR . . .
- Keeps meal savory hot AFTER serving . . . for the EATING period . . .
- Uses ANY china dinner plate up to 9½" diameter . . . or works with Mealpack Pyrex type and vitrified china dishes . . .
- Works with ANY traycart that takes its tray size of 16½" x 22½" and over-all height of 5" . . .
- Provides VACUUM SEALED entree protection from main kitchen . . . or from floor pantries . . . to serving points, and for DELAYED trays . . .
- May be used with or without complete Mealpack Systems . . . Simple, fool-proof, durable, attractive . .
- Only 3 basic elements: Tray and Dome Cover molded from shock- and heat-resistant tough plastic; Heat Battery of Pyrex type glass (just preheat in your own oven or a Mealpack Infra-Red Dish Heater) . . .

Send for leaflet SD-30 with helpful application data and detailed specifications.

Look! Mealpack's Magic new HOT-PAK Tray Server

HOT-PAK Tray Server using any china dinner plate up to 9½" diameter.

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lowing are the 1957-58 officers for the Detroit Association: President, Virginia Kopec, Henry Ford Hospital; President-Elect, Gertrude O'Hara, Dairy Council of Detroit; Vice-President, Waneta D. Holscher, Harper Hospital; Secretary, Betty Navin, Board of Education; and Treasurer, Jean Schulze, Henry Ford Hospital.

New Mexico Dietetic Association. Twenty-five New Mexico dietitians decided that "Nothing's More Fun Than Eating Outdoors" at Dorothy Hacker's hacienda in Santa Fe on August 14. New officers of the New Mexico Dietetic Association were elected as follows: President, Kris Anne Konugres, Los Alamos Medical Center, Los Alamos; President-Elect, Eleanor Miller, Albuquerque; and Secretary-Treasurer, Phyllis McRae, Atchison, Topeka and Santa Fe Railroad Hospital, Albuquerque.

The New Mexico dietitians were busy this past summer writing a state diet manual and planning a workshop for food service supervisors. They also have participated in the programs of the New Mexico school lunch, school nurse, and P.T.A. workships.

North Carolina Dietetic Association. The annual fall meeting of the North Carolina Dietetic Association was held in Asheville, November 1 and 2. Theme for this meeting, which was held jointly with the North Carolina Home Economics Association, was "Shared Responsibility for Community Problems."

Dr. John H. Furbay, Director, Air World Education, Transworld Airlines, chose as his subject "Let's Join the Human Race." A discussion on "Newer Concepts of Nutrition as a Therapeutic Agent" was lead by Dr. Herbert Pollack of New York City, a member of the Food and Nutrition Board, National Research Council.

An interesting debate followed on: "Resolved: That Home Economics Is Growing in Shared Responsibility for Community Problems." Following the debate, group discussions were held on recruitment, effective teaching, human relations, communications, and professional growth.

Pennsylvania Dietetic Association. Officers for 1957-58 of the *Philadelphia Dietetic Association* are: President, Dr. Frances R. Godshall, Temple University; Vice-President, Marian S. Bryan, Visiting Nurses Society; Secretary, Jean Joslin, St. Christopher's Hospital for Children; and Treasurer, Lauretta Foster, Pennsylvania Hospital.

The September meeting of the Association was held at Friends Hospital where Elsie L. Felker spoke on "I Love Hats." In October, the meeting of the group took place at Drexel Institute of Technology. Elizabeth Mellor, Associate Professor in Home Economics at Drexel, presented "Key Points of Successful Discussion Work."

South Carolina Dietetic Association. A joint workshop, "Nutrition in the Basic Curriculum in Schools of Nursing," was sponsored by the South Carolina Dietetic Association and the South Carolina League for Nursing, September 13 and 14. The program, held at the Jefferson Hotel in Columbia, was arranged by co-chairmen, Ira Dean Lane and Adelaide Dorsey. The principal speaker and resource person was Henderika Rynbergen, Associate Professor of Science, Cornell University—New York Hospital School of Nursing. Other out-of-state participants were Helen Stacey, Assistant Chief, Nutrition Section, Children's Bureau, Washington, D.C., and Leilee P. Ault, Assistant Professor, School of Nursing, Medical College of Georgia. In-state participants were the dietitians, nutritionists, nurses, and social workers from the state Department of Health, schools of nursing, and health agencies.

The symposium for the first day, entitled "What Should We Teach the Student Nurse?" was divided into four areas of discussion: nutrition and nutrition problems of the mother and newborn baby, nutrition and nutrition problems of the pre-school child, emotional aspects of nutritional problems, and meeting the nutritional needs of the low-income groups.

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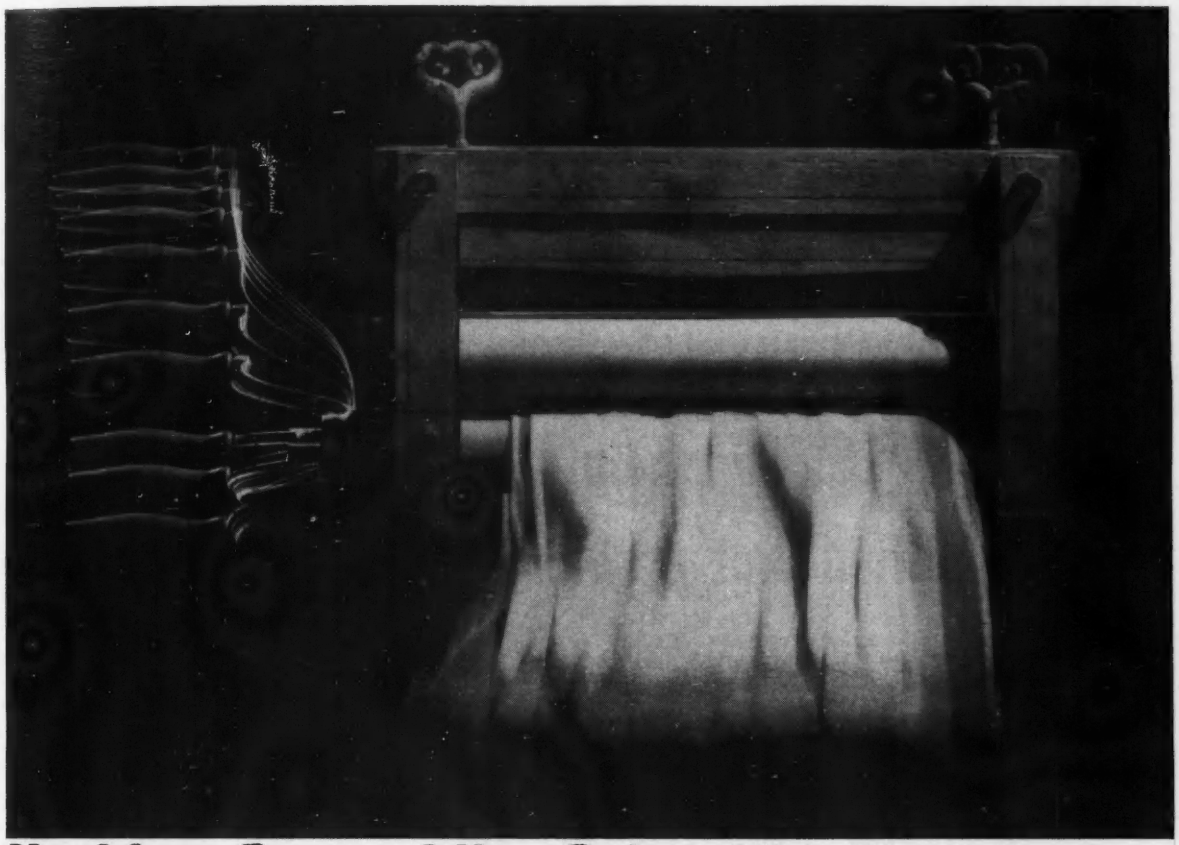

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Therapy," the subject of the symposium for the second day, was divided into three parts: where to place nutrition in the curriculum, correlation of nutrition and clinical subjects by nurse and dietitian, and satisfactory motivation.

A digest of the workshop will be placed in the Lulu G. Graves Library, at the headquarters office of A.D.A., for those interested in conducting similar workshops. Copies may also be obtained from Bessie Graham, 3009 Lincoln Street, Columbia, South Carolina.

Washington State Dietetic Association. Members of the *Seattle Dietetic Association* have inaugurated a "Big Sister" program for this year. They plan to help the dietetic interns feel more welcome in the group and also help members of the association to become better acquainted with the interns. The October meeting was held at Doctor's Hospital, where Dr. Thomas Nilsen, Assistant Professor of Speech, University of Washington, spoke on "Communications."

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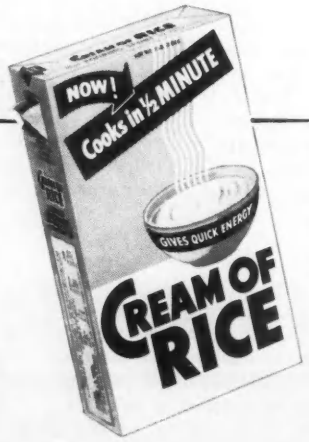

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Association Activities

New A.D.A. Officers. You will want to become acquainted with our new 1957-58 A.D.A. officers, board and committee members. The officers' page in this issue will give you a basic introduction, and a subsequent listing of committee and board members.

41st Annual Meeting. Our A.D.A. Annual Meeting will be held in Philadelphia, October 21 to 24, 1958.

Puerto Rico Affiliates. A hearty welcome to the Puerto Rico Dietetic Association, Inc., which joined us on September 25, 1957. This is the 52nd affiliation with The American Dietetic Association—including all the states, District of Columbia, Hawaii, and Alaska.

Officers of the Puerto Rico Association are: President, Ana Victoria Jimenez de Ruiz Perez, VA Hospital, San Juan; President-Elect, Lillian Colon Funtane deReguero, San Juan; Secretary, Ana Esmeralda Nunez, Santurce; and Treasurer, Maria Castaing Vila, Ponce.

A.D.A. Representatives Attend State Meetings. State dietetic association meetings, in addition to those mentioned previously, which A.D.A. representatives will be attending are:

November 8 - 9 — Marjorie M. Morrison, West Virginia Dietetic Association, Clarksburg.
November 14—Ruth M. Yakel, Connecticut Dietetic Association, New Haven.
November 14 - 16 — Geraldine M. Piper, Virginia Dietetic Association, Richmond.

NPAC. A training-planning workshop sponsored by the National Project in Agricultural Communications was held in Gull Lake, Michigan, September 29 to October 5. Details from our representatives will be given later.

FCDA. Rosemary L. Lodde, Veterans Administration, Washington, D.C., was our official representative at the National Women's Advisory Committee to the Federal Civil Defense Administration, October 21-23, in Washington. A report will follow.

Nutrition Session, Thailand. Dr. Esther L. Batchelder, U.S.D.A., Washington, D.C., will be presenting a paper on nutrition at a Technical Nutrition Session of the Ninth Pacific Science Congress of the Pacific Science Association, held under the auspices of His Majesty's Government of Thailand in Bangkok from November 18 to December 9, 1957.

Dr. Batchelder will also represent A.D.A. at this meeting.

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News of Products and Services

The Electro-Therm Pump has been developed and is now offered by the *Legion Equipment Co., Inc.* It is a self-contained unit using a specially designed, non-corrosive fluid rather than steam pressure. It is so designed that it can be connected directly to a kettle or at a distance from it. For example, it can be mounted under portable tables and then moved to various work stations when table tilt kettles are needed. With the Electro-Therm-Pump, table-tilting kettles of 4- to 100-gal. capacity can be electrically heated, as well as large-capacity trunnion kettles. A thermostat makes possible a wide range of cooking heats.

A portable vegetable peeler, Univex Model "H," is the newest addition to *Universal Industries, Inc.*, line of food peelers and mixers. Operated by an a.c. ¼-h.p. electric motor, the peeler peels a 15-lb. load in less than 1 min. The new peeler may be used on the drainboard of any sink and requires no installation or plumbing. Pulverized peelings flow down the drain without danger of clogging. Cylindrical in shape and of stainless steel construction, it features a removable peeling disc and a semi-automatic discharge chute. The standard model comes with a manual switch. An automatic timer is available.

"On your own hook . . . ," is the title of a new leaflet from the *National Dairy Council* designed to provide eating advice to teen-agers leaving home for the first time—either to enter college or to work. The Basic 7 food groups are listed and illustrated and suggestions for economical food shopping are made.

Campbell Soup Company has introduced three new soups in markets across the country. Each is different from the other condensed soups familiar to most consumers. One is Chicken Vegetable, containing carrots, potatoes, onions, tomatoes, celery, peas, chunks of chicken, and enriched ribbon noodles. The second is Minestrone, an Italian-style vegetable soup. Included in this flavorful soup are carrots, potatoes, tomatoes, onions, celery, peas, green beans, zucchini, cabbage, turnip greens, mustard greens, enriched spaghettini, and a touch of Italian cheese. The final member of the new trio is Turkey Noodle soup, made with turkey stock, enriched egg noodles, and chunks of turkey.

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